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HUNT'S

MERCHANTS' MAGAZINE.

MARCH, 1847.

Art. I.—HISTORICAL SKETCH OF NAVIGATION AND NAVAL ARCHITECTURE.

NUMBER V.—NEW SERIES.

A military marine is the only arm by which the power of this confederacy can be estimated, or felt, by foreign nations, and the only standing military force which can never be dangerous to our liberties at home.—JOHN QUINCY ADAMS.

COLONEL BEAUFOY made frequent representations, to those in authority, of the importance of following up the investigation of "the resistance which water opposed to solids, in passing through it," by further experiments, at the expense of the government; but his suggestions were unheeded, and no attention was paid to the subject, after his decease, until researches were commenced, in 1841, by J. Scott Russell, under the direction of the "British Association for the Promotion of Science and the Arts." He has made two reports to the Association, the first in 1842, and the second at the meeting held at Cork, in 1843; but, thus far, he seems to have confined his operations to ascertain the effect of the surface of solids in diminishing the resistance, in passing through water, without regard to dimensions, or any other element; and, to prove its influence, four boats were made, all having the same length, breadth, and depth—the same area of form of midship section, and all loaded to the same weight, displacement, and draft of water; the only difference being in the character of the "water lines," as he rather indefinitely terms them—that is, the mere contour. The result was favorable to what he calls the "wave line," which had been hypothetically assumed, as the most appropriate.

This synthetic mode of proceeding, in researches for truth, is not to be depended upon in such physical inquiries; for it is beginning at the wrong end in the establishment of principles, and has long been repudiated by the schools of philosophy, as not merely fallacious, but so utterly ineffectual, as not to be tolerated in any of the scientific societies and academe-

mies of the present age. It was the great resource of metaphysical and scholastic controversialists in olden time, and still is, where bewilderment and deception are the objects desired, rather than elucidation; but those who enter the career of intelligence, in search of the unknown, with such a guide, will never find it: for their direction is inverted. They have taken the back track, and are rushing from the goal towards the starting point, instead of proceeding from effects to causes, and evolving therefrom principles.

Still, Mr. Russell may be prosecuting other experiments analytically, and it is to be hoped such is the case; for the object to be attained is most worthy the attention of the scientific association, which has so liberally furnished the means for its accomplishment. It is but just to infer that what has been published does not include all that has been done in the progress of investigation, or that facts, causes and principles will not be ultimately ascertained, in sufficient numbers, to establish a more perfect system of naval architecture.

The system at present used by the Swedish naval engineers, in the construction of ships of war, was the result of the laborious researches of Chapman. It is called the parabolic method, and is explained in a work entitled, "*Forsak till en Theoretisk Afhoudling att gifnaat Dinie Shepherdas ratta Storlek och Form Likaledes for Fregetten och windere Bevaade Fartyg of F. H. of Chapman.*"

Having attempted to give a brief account of the past and present condition of naval architecture, and the various modes in which efforts have been made to increase and combine the velocity of ships with capacity, stability, strength and safety in their construction, I shall now present the results which have been obtained, by the investigations that have been instituted, in relation to the movement of solids through fluids, and such of the facts and principles which have been established in hydraulics and mechanical science as are applicable to ship-building, with suggestions of the expediency of their being made the basis of experiments, which, it is confidently believed, can then be conducted in a manner so much more simple, direct, and expeditious, than any which have hitherto been undertaken, as to render more certain the solution of the problem which has so long claimed attention, and is so important for facilitating the intercommunication between all nations, and the various portions of each, by improvements in vessels of every denomination, which are either employed in navigating the ocean and our extensive bays, sounds, rivers, and lakes, for the transportation of merchandise and passengers, or are destined for the fleets of war.

Colonel Barclay ascertained the following facts:—

1. A cone will move through the water with less resistance having its apex foremost.
2. The bottom of a floating solid should be triangular, it being the form that is least resisted when moving in the direction of its longest axis.
3. The greatest breadth should be at the distance of two-fifths of the length from the forward end.

ESTABLISHED PRINCIPLES IN HYDRAULICS.

1. The chief resistance to be overcome in moving a solid through a liquid, is that of the prism of water, the area of whose cross-section is equal to that of the body moved.

2. The resistance to a solid moving in a liquid increases as the squares of the velocity.

3. The stability of a solid, in a fluid, is in direct proportion to the length, and increases as the cubes of the breadth; so that adding a quarter to the width doubles the stability.

4. There is a lateral retardation to the movement of a solid through a liquid; and for the following explanation of which, as well as the amount of resistance, as compared with that occasioned by the area of the cross-section, I am indebted to Professor Treadwell, who may justly be considered as the American Archimedes in mechanical science.*

When a solid body is moved in a liquid, as water, there is no motion between the surface of the solid and that of the liquid, and consequently no friction, for the reason that the film of water in immediate contact with the solid adheres to it, by a peculiar form of attraction. Instead, therefore, of the surface of the solid sliding upon the liquid in contact with it, a film of the liquid must move with the solid, sliding upon the particles of liquid situated upon the outside of it. These particles, however, cannot remain stationary; for, being attracted by the particles constituting the film upon the solid, as much as by those situated farther from the solid, they will be carried along by the former with a celerity less than that of the solid, being retarded by their inertia and adhesion to the particles situated still further from the solid.

In this way, we may conceive of the water, upon the outside of the solid surface, as divided, for a considerable distance, into definite films, infinitely thin, each sliding upon the other. Under these conditions, therefore, the friction is that of a liquid sliding upon a liquid. The resistance thus produced is exceedingly small, if sufficient to be made sensible, as is evident from the great motion produced in the waters of the ocean by the small disturbing force from the action of the moon's attraction, which produces the tides.

The resistance thus offered to the sides of a solid, moving in a liquid, whatever it may be in amount, is not to be attributed to friction, but to the viscosity of the liquid, and to the little eminences upon the sides of the solid, which constitute its roughness, and displace the liquid in opposition to its inertia, like so many separate solids.

Colonel Beaufoy ascertained that this combined lateral resistance, on a smooth-pointed surface of seventy feet, was equal to that formed by removing the water in the passage of a body having a cross-section of one foot area; the prow and stern of this body terminating at acute angles. So that every square foot of the cross-section of a ship should be connected with about seventy feet surface on the sides and bottom, to give the least resistance; which requires that a vessel ten feet wide, and two feet deep, below the surface of the water, should be at least one hundred feet long.

5. A vessel requires a greater power to move it, in a narrow and shallow channel of water, than in a broad and deep one.

This fact was first noticed by Dr. Franklin, when passing through a

* Rumford, Professor of Science applied to the Arts, in Harvard University, and the inventor of the steam printing-press, the machinery for spinning hemp and making cordage in the U. S. navy-yard in Charlestown, and of the method of making wrought-iron cannon, in such a perfect manner as to give them a decided superiority over those of cast-iron and bronze.

canal in Holland, in 1761. Perceiving, in the course of a day's excursion, that the "trockschuit," in one of the sections of the canal, seemed to move slower than usual, he asked the boatman what was the reason; who answered that the season had been dry, and the water was consequently low, which rendered it more difficult for the horses to draw the boat. After returning to England, he inquired of the Thames watermen whether they were sensible of any difference in rowing in shallow or deep water; and they all agreed that there was a great difference, but differed as to the amount; varying in their estimates from one mile in six to one in three.

Not having seen this subject mentioned in any philosophical work, he determined to make an experiment to verify the fact. Having formed a trough to contain water, fourteen feet long, six inches wide, and six deep, and placed therein a little boat, which was moved by the means of a silk thread, pulley, and weight, he found that the difference of time, in seconds, between its passing through the water, when only one inch and a half deep and four inches deep, was as 101 to 79, or nearly one-fifth.*

This principle has been adopted in the construction of canals; and the great depth and breadth proposed by General Bernard, for the Chesapeake and Ohio Canal, was for the purpose of equalizing the time, in passing through it, with that on the Erie Canal, in the State of New York, by giving such an increased velocity to the boats as would counterbalance the delay occasioned by the extra lockage, in passing the Alleghany mountains. Professor Treadwell thus illustrates the principle:—

A boat six feet wide, three feet deep, and twenty feet long, being placed in a canal eight feet wide and four feet deep, and moved through the water twenty feet, a quantity of water, equal in volume to the boat, (namely, 360 cubic feet,) must pass by its sides and bottom, in a direction opposite to that of the boat, to occupy the space which was before occupied by the boat. The area of the channel, through which the water passes, is fourteen feet; and if the velocity of the boat be five feet a second, the time of the passage being four seconds, the water must move with a velocity of about six and a half feet a second, over the bottom of the canal.

If the same boat is placed in a canal ten feet wide and five feet deep, and moved as before, the same quantity of water must pass the sides and bottom, but the area is now thirty-two feet; consequently, the velocity of the water will be but $2\frac{8}{5}$ feet per second. Then, if the velocity of the boat, measured from the side of the canal, be five feet a second, its velocity over the water, which is moving in the opposite direction, will be, in the first case, $6\frac{1}{2} + 5 = 11\frac{1}{2}$; and in the second case, $2.8 + 5 = 7.8$ feet; and the resistance to the boat will be as the squares of these numbers, viz: 132 and 61.

With these established principles as the basis of inquiry, and the problem to be solved being how the form of any vessel of the usual dimensions, employed in the merchant, packet, or naval service, may be so changed without a diminution of capacity, or an increase of the propulsive power, as to insure greater *velocity*, it is evident that it must be chiefly accomplished by a reduction of the area of the cross-section, whereby the resistance, occasioned by the prism of water, opposed to the movement of the vessel, is lessened; and this can only be done by a reduction of the

* Sparks's Works of Franklin, Vol. VI., p. 283.

dimensions of breadth and depth, while the space thus lost must be regained by an increase of the length. But if mere *capacity* is required to be augmented, with the retention of the speed obtainable, by the vessels assumed as the models to be altered, and without any increase of the motive power, it can be effected by adding length, while the breadth and depth are retained; for the cross-section will be the same, although the capacity of the vessel may have been doubled, by the extension of the longitudinal dimension.

The requisite increase of the length of a vessel, as compared with its breadth and depth, to obtain the greatest velocity, with a given motive power, must be determined, without regard to that form of the sides, bottom, bows and stern, which may be deemed the most favorable for passing through the water. For this purpose an experiment should be made, to ascertain how far the length can be increased, with a fixed depth and breadth, before the *lateral retardation*, which has been explained in the hydro-principle, No. 3, operates adverse thereto. This may be done with an apparatus like that employed by Doctor Franklin, to determine whether a vessel was moved with less power in deep than in shoal water. This having been accomplished, it is then to be considered how great a portion of the length can be retained, in the construction of steam and other ships, and at the same time render them sufficiently stable, strong, and safe, in navigating the ocean.

The next most important object, is the ascertainment of such a contour, for the hull, as shall best combine the qualities for affording celerity of movement through the water, with stability, capacity, manageableness, and security in all kinds of weather.

As primary elements in this investigation, these two facts, which were established by Colonel Beaufoy, must be duly considered: first, that "the bottom of a floating solid should be *triangular*, it being the form that is least resisted when moving in the line of its axis;" and second, that "the greatest breadth should be at the distance of two-fifths of the length from the forward end."

The first being the perfect type of the cross-section, it should be only so far deviated from, as may be found indispensably necessary, for giving sufficient capacity and stability.

It is very desirable that there should be some perfect scientific system devised, by which the best possible form can be certainly given by the naval constructor, to the sides, bottom, bows and stern of vessels of every denomination; and as, in all other arts, principles have been established for regulating the manner of proceeding in each mechanical operation, it is probable that there may be devised equally definite and uniform laws or rules, for the projection of the form of ships. Is it not, then, worthy the attention of the scientific, to inquire whether the most perfect profile, for all the horizontal, longitudinal, and cross-sections, may not be that of a hyperbola, parabola, or an ellipse, as they are capable of infinite variation, but in conformity to known geometrical principles. They were adopted by the Greeks for producing that graceful form to all the carved mouldings of their superb orders of architecture, and to those precious antique vases, which have been so universally admired, but which were inexplicable, until science recently revealed the fact that they were derived from the section of a cone. The paths of some of the most remarkable comets which have been observed, while passing their perihelions, were hyper-

bolae. The parabola is the line described in the movement of all projectiles, from that of a pebble, hurled by the hand of a child, to the massive shell, thrown from the ramparts of a castle; and all the planets and most of the comets perform their periodical revolutions, in elliptical orbits.

It has been ascertained that in constructing the most powerful metallic mirror, for collecting parallel rays of light in a single point, a curved surface, which is generated by the revolution of a parabola about its axis, is the best that can be employed, as it will reflect all the rays incident upon it, to the focus of the generating parabola, which no other form of curve will accomplish.

By adopting the hyperbola, parabola, or ellipse, for the horizontal and vertical lines of the contour, from stem to stern, and from the keel to the rail, all the parts of the hull may be projected on strictly scientific principles, and a form thus obtained, which may be easily transferred to vessels of all sizes, and for any kind of service.

As the hyperbola and parabola approach the nearest to a triangle, which is the central vertical section of a cone, and may be so varied in their curves, and the manner of adaptation for producing convex or concave surfaces, that the triangular configuration of the bottom, which has been ascertained to be the best, will be the least deviated from, and yet afford any required capacity and stability.

These remarks, however, are to be considered, rather as intimations than established elements, from which the desired results may be attained; and have only been presented for the purpose of inducing experiments, to establish some uniform mode, by which the most perfect form can certainly be derived, in the construction of ships, without the possibility of those unavoidable deviations, which arise from the adoption of the arbitrary and inadequate rules that are generally relied upon.

But after all, it is by *length* that *velocity* and capacity are mainly to be gained, rather than by any peculiar configuration of the hull, below the water-line; and although other advantages may be acquired, the latter are worthy of the most serious consideration, as accessaries in the attainment of the former, as well as for stability and manageableness.

It is very remarkable, that among all savage and semi-barbarous nations, there has either been perpetuated by tradition, the principle, which may have been established in a very remote age of ancestral civilization, or it has been ascertained as a fact, during centuries of practical experience, that *length* is the chief element in the construction of a vessel, in which speed is desirable. The birch canoes of the northern tribes of Indians in this country, the *batteaux* of the voyageurs and hunters of Canada, and the boats of all the natives in the islands of the Pacific ocean, are distinguished for their length and celerity of movement, whether propelled by paddles or sails.

Commodore Bainbridge stated, that when he was at Constantinople in 1800, as commander of the frigate *George Washington*, he was very much astonished at the rapid motion of the innumerable boats which were constantly employed in the spacious harbor of that city. They were generally propelled with only two oars, but with such a velocity as he had never seen given to any boat, for they passed his six-oared gig like an arrow. When asked what was the peculiar form that gave such extraordinary speed, he replied that it was derived from their great length, as com-

pared with the dimensions of breadth and depth; for, in all other respects, the form was of the simplest kind.

As savages are almost entirely dependent upon hunting and fishing for their daily food, and having no other artificial means of transportation than that afforded by a boat, it is of the first consequence that they should be so constructed, as to be moved with the greatest facility, by mere manual power; and therefore it was to have been expected that the only mechanical invention, besides weapons of war, and instruments for killing game and taking fish, should ultimately be so formed, as to fulfil all the conditions required.

The native Asiatic and American navigators of the torrid and temperate zones, have all evinced great ingenuity, in the construction of boats which are remarkable for velocity, and the mode in which they are rendered secure against the disasters of tempestuous weather.

It is stated in the account of the expedition of Lewis and Clark to the mouth of the Columbia River, that the Indians exhibited great skill in the construction of their canoes. Indeed, so much of the intercourse between the different tribes was carried on by water, that their ingenuity was naturally directed to the improvement of their boats. Four kinds were used below the cataract. That most commonly employed was from thirty to thirty-five feet long. It was very light, for although it would contain ten or twelve persons, four could carry it with great ease. The largest variety is only used near the mouth of the river. It is fifty feet long, and is formed of the single trunk of a white cedar or fir-tree. The upper-edge of the gunwale is about five-eighths of an inch thick, and four or five in breadth, and folds outward, so as to form a kind of rim, which prevents the water from beating into the canoe. They carry from twenty to thirty men, and ride, with perfect safety, the highest waves.

The Japanese vessels are generally 120 feet long and only twenty wide, and the bottom, below the water-line, instead of being convex, is *triangular*.

The most singular and celebrated variety of the vessels which are employed by the natives in the Indian Ocean, is the Flying Proa. The simplicity of its contrivance, and the extraordinary velocity with which it passes through the water, are equally worthy of admiration, and merit the highest place among the mechanical productions of civilized man.

In construction, the proa is directly opposite to every principle of marine architecture which has been adopted by the most scientific nations. The head and stern are both sharp, as this boat never puts about, but sails either end foremost; yet in such a manner, that only one and the same side is constantly exposed to the wind. The lee-side is perpendicular, and the form is like that of half of a batteau, divided vertically lengthwise. From the extreme length, shape, and narrowness of the vessel, it would immediately capsize, but for a contrivance as extraordinary and curious, as it is effectual in preventing an accident of that fatal character. A frame, or out-rigger, is attached to the convex or weather-side, which extends horizontally ten or twelve feet over the water, to the extremity of which is fastened a log of wood, fashioned into the form of a boat. The weight of the frame balances the proa, and prevents it from falling over to lee-ward under a pressure of sail, as well as secures it against all risk of capsizing.

The hull is formed of two pieces of wood joined edge-wise. The bot-

tom, or part next to the keel, is about two inches thick, and gradually diminishes to the gunwales, where it is reduced to an inch. The length is thirty-seven feet and a half, the breadth only three feet.

The canoes of New Zealand, as described by Captain Cook, were long and narrow, with a triangular bottom, and sharp at both ends. They carried from forty to one hundred and twenty men. He measured one which was sixty-eight and a half feet long, five broad, and three and a half deep.

The Ivahohs, a kind of boat used by the inhabitants of Otaheite, is fifty-one feet long, three feet wide, and three and a third deep.

Thus it appears that the length of the swift boats, of those various barbarous nations, is from ten to seventeen times their breadth, and, except the proa, are beautiful in form, and all of them remarkable for their safety even in rough seas. The length of the Egyptian ships, built by Philopater, was more than seven times their breadth.

Sir Joseph Dudley, who was appointed an admiral by Henry VIII., and made Duke of Northumberland by Edward VI., first suggested *length*, for the purpose of obtaining velocity and capacity; and in conformity to that principle recommended an entirely new model for ships of war, which he divided into seven classes. The length of the Galleon, or first class, was four times the breadth, and that of the others was gradually increased, until in the seventh class, called the *Passa Volante*, which was chiefly intended for speed, it was ten times the breadth. But this early enunciation of a great truth was utterly disregarded, until by its partial adoption in France, during the administration of Colbert, when the war-ships of that nation became celebrated for their superiority over those of all the other maritime powers of Europe, not only for their efficiency to meet the tremendous shocks of tempest and battle, but for their velocity.

Notwithstanding the obvious demand for the direct application of one of the first and most clearly established principles in hydraulics, and the facts by which it had been illustrated, in its practical adoption by savage nations, for centuries; still the only mode in which it was attempted, for a long period, to obtain increased velocity, was by variations of the lines of the sides, bottom, bows, and stern, on the erroneous supposition that the *lateral retardation*, or "friction," as it was termed, was the chief obstacle to be considered and overcome.

There has been a too general apprehension that greater *length* than was commonly adopted—which did not often exceed three times the breadth, in all classes of vessels—could not be given without so much diminishing their strength as to endanger their safety in navigating the ocean. So universal and confident has been the belief in the correctness of that assumption, that it has been acted upon with the same implicit confidence as if its validity had been fully verified by repeated experiments; for there did not appear any nautical Archimedes, who had the temerity to doubt and test its reality, in defiance of the credence and custom of maritime nations, until very recently. At last experiments have been made to a considerable extent, in merchant vessels, steamers, and ships of war, and their length has been rapidly increased, within a few years, in Europe and this country, and may be still farther extended, without rendering them less safe as sea-going vessels, by adopting Sir Robert Stepping's diagonal and triangular system of ship-building, and doweling the sides and ends of the timbers of the frame, as well as filling up the spaces between them, and

caulking and paying them over, so as to make the whole fabric not only stronger, but more secure against leakage, as is now done in the national ship-yards.

As a further security, in vessels of great length, why could not a truss-frame be introduced, from the stem to the stern-post, in all kinds of vessels, and at least as high as the beams of the lower gun-deck, in ships of war, on the plan of either Town's, Hassard's, or How's bridges? Such a structure would prevent hogging and settling amidships, besides giving vastly greater strength to the whole hull.

NEARCHUS.

NOTE.—The end of this series of Letters, but the subject may be hereafter resumed, and continued to the period in which we live.

Art. II.—THE COAL MINES AND COAL TRADE OF BELGIUM:

HISTORICAL, STATISTICAL, AND COMMERCIAL.

DISCOVERY OF COAL AND PROGRESS OF MINING.—AREA OF COAL FIELDS IN BELGIUM.—WESTERN OR HAINAUT DIVISION.—EASTERN DIVISION.—COAL BASINS.—COAL STATISTICS OF BELGIUM.—PRICES OF BELGIUM COALS AT THE PIT'S MOUTH AND CANALS.—EXPORTATION OF COAL FROM BELGIUM TO FOREIGN COUNTRIES.—BELGIAN IMPORTATION OF COAL.—COALS AND CINDERS.—IMPORT DUTIES.—EXPORT DUTY.—STATISTICAL TABLE OF THE PRODUCTION, EXPORTS, IMPORTS, AND CONSUMPTION OF COAL IN THE KINGDOM OF BELGIUM.—THE FAT COAL.—ANTHRACITE COAL.—PROVINCE OF NAMUR.—SMALL AND DETACHED COAL BASINS IN BELGIUM.—CONDITION AND PROSPECTS OF THE BELGIAN COAL MINES.—THE ROYAL RENTS.—CONCESSIONS.—PREPARED FUEL.—FEATS.—CANALS AND RAILROADS OF BELGIUM.—STEAM-ENGINES.

THE discovery of bituminous coal in Belgium,* as is stated by the local historians, was first made, in the country of Liege, by a blacksmith, named *Hullos de Plennevaux*. This occurred, A. D. 1193 or 1200, and hence is said to have originated the now common name of the mineral carbon, *Houille*. It is only a few years ago, that, opposite to the entrance of the collegiate church of St. Martin, they yet showed the place where the first opening on the coal was made.

The coal mines of Belgium, like those of France, have, from a very early period, been subjected to the inspection of government officers. This system, notwithstanding its seeming interference with the exercise of private rights, and with the management of individual property, has much to recommend it; and in fact, has been strongly urged to be put in practice in Great Britain, whose coal mines, so vital to her strength and prosperity, it seems surprising, should so long have been left entirely to the unassisted efforts of individuals, without organization or even the supervision of the State.

So early as the fifteenth century—A. D. 1487—the prince bishop of Liege issued a commission on mines; which commission found that there

* KINGDOM OF BELGIUM.—Entire area of land,	2,942,574 hectares	7,271,100 Eng. acres.
Area under cultivation.....	2,220,000 "	5,485,620 "
Ascertained area of coal land in 1838. $\frac{1}{2}$ of the whole, or.....	134,113 "	331,392 "
Amount of fixed and provisional concessions, for working coal.....	123,765 "	305,820 "
Area of do., in 1843, $\frac{1}{17}$	164,649 "	411,787 "
" " 1838, for working iron.....	59,221 "	124,096 "
Population, about two persons to each hectare, 4,242,000.		

had been established, from the most remote times, a court or jury of four persons, afterwards increased to seven, called "*La Cour des voir Jurés du Charbonnage*," for the investigation and direction of the affairs of mines; and that two of its members were obliged to descend, periodically, (every fifteen days,) to examine them.

King Philip, in 1635, passed an ordinance touching the coal mines of Namur, and Charles of Spain, as duke of Limbourg, in 1694, issued an edict of fifty-six articles on the coal mines of that duchy. During our own times, France, the Netherlands, and Belgium, have distinguished themselves by issuing laws for the regulation of the working of their respective mines; leaving England the very last in the field to establish a system of such important, humane, and necessary judicial interference.*

In Spain, where the business of coal mining is as yet in its infancy, the importance of carrying on the colliery workings agreeably to the mining laws that are already in force as regards other minerals, has recently become the subject of application to the government, from the coal proprietors of Asturias. They complain that, "at present, the peasants, without any subjection to the rules of arts, or to the payment of dues, raise up the coals by means of pits, sixty or more Spanish yards deep; and, as they have nothing to disburse for scientific direction, and incur none of the other expenses which fall upon the regular companies, they prevent the proper development of this new source of industry. All we want, therefore, is the strict observance of the laws, and special protection from the government."†

AREA OF COAL FIELDS IN BELGIUM.—This country is traversed in a direction from nearly W. S. W. to E. N. E., by a large zone of bituminous coal formation. The statistical divisions of this band have not been uniformly adopted or described by local topographers, and some confusion has occasionally taken place among authors from this circumstance. We shall, therefore, as far as practicable, adhere, in the following notes, to the arrangement ordinarily observed in the official reports made to the Belgian government; at the same time, we shall avail ourselves, wherever it may be desirable, of the statistical details which have occasionally been furnished by cotemporary authorities.

The entire region has been customarily described under two principal divisions, as follows:—‡

THE WESTERN OR HAINAUT DIVISION comprises—I. A. The two basins known as the Levant and the Couchant of Mons. B. That of Charleroi. II. That of Namur.

The latter lies within the province of Namur; while the two former are within the province of Hainaut, stretching into the Department du Nord in France, where its traces are lost, a little below Douay.

THE EASTERN OR LIEGE DIVISION, commencing in the province of Namur, and embracing a small portion thereof, traverses the province of Liege, directing itself towards Rhenish Prussia, where it communicates with the coal basins of Eschweiler and Rolduc, and with the duchy of Limbourg, in the low countries. The point of division between this and the preceding, is said to be the deep and narrow gorge, through which the

* Articles on the causes and means of prevention of accidents in coal mines, in the Mining Journal of London, March 4th and August 5th, 1843.

† Address of the *Espada* Colliery Company of Oviedo, to the Central Mining Junta of Carthagena.

‡ Bulletin de la Commission Centrale de Statistique de Belgique, 1844.

Sampson River flows, in the province of Namur. The whole belt is about a hundred miles in length; or, including its prolongation into France, one hundred and fifty miles.

The subdivision of this great Belgian coal zone is as follows:—

ACCORDING TO GEOLOGICAL AREAS.

Coal Basins.		Length in Square		Hectares.	English acres.
		Eng. miles.	miles.		
Western or Hainault	I. In the province of Hainault, 75,725 hect's, 187,116 ac's,	39			
	II. In that of Namur, 14,326 hectares, 35,400 acres,	18			
Eastern or Liege....	II. In the province of Namur, 2,317 hect's, 5,725 acres,...	6			
	III. In that of Liege, 44,745 hectares, 103,151 acres,	33			
Total, according to the official report, in 1842*.....		96	485	134,113	331,392

As the government returns are made, not according to any supposed geological divisions, but with reference to the provincial areas, the latter will be represented as below:—

ACCORDING TO PROVINCES.

		Length in		Area in	Hectares.	Eng. acres.
		in miles.	sq. miles.			
I.	In the province of Hainault.....	39	274	75,725	187,116	
II.	" " Namur.....	24	59½	16,643	41,125	
III.	" " Liege.....	33	151½	41,745	103,151	
		96	485	134,113	331,392	

Being the $\frac{1}{2}$ part of the superficial area of Belgium.

There appears to be a discrepancy between these estimated areas, and the official aggregate of "concessions," or grants to work the coal beds within the Belgian region. The difference is explainable, on the one hand, on the probable ground that the concessions frequently occupy more area than strictly belongs to the coal formation; and on the other that the entire mineral areas are not yet conceded. We annex the returns of those grants of mining lands:—

ACCORDING TO CONCESSIONS PRIOR TO 1842.

		Hectares.	Hectares.	Hectares.
I.	In the province of Hainault, { Mons District, 52,607 }	30,686 }	83,293	205,817
II.	" " Namur.....		11,887	29,372
III.	" " Liege.....		28,585	70,631
			123,765	305,820

It will be necessary to bear in mind, with reference to these areas, that one series represents the superficies of the geological basins, while the other is that of the lands conceded, and provisionally granted.

The coal field of Belgium is said to be superior to any on the continent of Europe, and is estimated to be more valuable than the silver mines of Peru, or the gold of Brazil. The basin of Mons contains above one hundred and thirty coal seams, disposed one above the other; all workable and all wrought. The four principal collieries of Mons, Marimont, Liege, and Charleroi, yielded, in 1838, 3,260,271 English tons, and 4,500,000 tons in 1844.

One of the richest deposits of coal that is known, forms the nearly con-

* Rapport presente au Roi. Statistique de la Belgique, 1842—the latest official return.

tinuous series of coal basins, placed along a belt 150 miles long, and from six to ten miles broad, which, passing through Belgium, crosses the north of France, and contains the collieries of Valenciennes, Condé, Mons, &c. At Liege, the measures are said to comprise eighty-three beds, and at Mons there are no less than *one hundred and fifty* coal seams.

These coal basins produce, at the present time, an annual amount of four and a half millions, or more, of tons of coal; worth fifty millions of francs, and employ more than forty thousand colliers.

The Belgian coal formation is of the same geological horizon with the great coal fields of England. It is remarkable for the undulating character of the beds of coal. Through a great part of its southeastern boundary, it is *inverted, so as apparently to dip under the older formations*; but on a portion of its northern margin, the earlier formations emerge in their regular order.*

In one respect, the southern coal fields of Belgium differ from those of other countries, especially of Scotland and Wales. This is in the comparative absence of seams of iron ore. A contributor to the London Mining Journal asserts that coals and iron are nowhere to be found together in Belgium.

We proceed to notice the principal coal statistics of this country. In Belgium, the coal business has felt the influence of political changes. From 1802 to 1832, instead of increasing, it experienced some small diminution in the annual amount of production. Latterly, this was no doubt owing to the loss of the exclusive supply of Holland, with which this country had been previously united. From 1832, it considerably increased, being now probably about double the production of that year; owing to the vast amount of additional capital brought by new companies into the trade. We will briefly trace the progress of Belgian mining industry.

In 1826, there were above 240 mines in work; all very rich, and giving employment to several thousand persons. In 1830, 314 coal pits were in activity. In 1838, there were in full operation, 307 concessions; comprising 652 pits or places of extraction; employing 37,171 miners and 384 steam-engines, of the aggregate power of 15,061 horses. These forces raised 3,260,271 tons of coal, whose value at the pit's mouth, was returned at £1,728,784 sterling, or \$8,278,181, United States currency, or 42,818,180 francs. The total number of steam-engines in the region was 1,171, with a force of 32,109 horses.† In 1842, the three principal coal districts, comprising 307 concessions, employed 38,502 workmen, and, including their families, supported 135,000 persons.

In 1843, the three coal districts comprised 411,787 acres of coal land, held under concession from the crown, by different companies, and the mining operations were greatly extended; producing, it is stated, nearly 4,000,000 of tons. It was officially announced in this year that the capital embarked by different associations, in coal and iron establishments, was 40,540,000 francs, or £1,637,318 sterling, \$7,836,400.

In 1844, there were 307 coal concessions in Belgium; 224 of these were the property of companies, and 83 belonged to anonymous associations. Their annual production was estimated at about 4,500,000 tons of coal, being more than 500,000 tons greater than that of France, and one-seventh part of that raised in Great Britain. She exported, this year,

* Sedgewick and Murchison in Geol. Trans., 1840.

† Bulletin de la Commission Statistique, 1843.

1,300,000 tons. The value of the coal produced this year, was estimated at 41,000,000 of francs.*

The production during the year 1845, has been announced by the engineer of mines, at 4,960,077 tons; exceeding the indigenous production of France, by 1,177,388 tons. This is greater than was ever before known. The increase in the province of Liege was 25 per cent, and in Hainault, 10 per cent over 1844.

The result of a geological survey of the mineral resources of the Sambre and the Meuse, by Mr. Sopwith, in 1846, shows that the coal mines in that part of Belgium, are capable of producing a quantity equal to one-tenth of all the coal raised in Great Britain.

In order to combine in one view, the various statistical details of the Belgium coal trade, of which we have given the foregoing outlines, we arranged the whole in the following tabular statement, showing the number of concessions, collieries, and pits in operation; their annual production in English tons, of 10,146 metrical quintals each; the average prices of coal at the pit's mouth, the number of miners employed, and the value of the produce at the mines, rendered in Belgian, French, American, and English currencies, in the provinces of Hainault, Namur, and Liege:—

Years.	Concessions.	Pits in work.	Miners.	Production in tons.	Price per ton, fr. cts.	VALUE OF PRODUCTION AT THE MINES. Belgian and French francs.	American Dollars.	Pounds Sterling.
1802.....	.....	.....	.....	2,635,000	10.00	.....	.....	.....
1830.....	224	314	29,253	2,533,761	10.23	25,920,000	5,011,200	1,047,600
1832.....	224	.....	.....	2,249,000	7.54	16,957,500	3,278,445	684,659
1834.....	307	341	28,606	2,443,568	7.82	19,108,700	3,694,276	772,280
1836.....	307	471	29,144	3,056,464	10.95	30,533,922	5,801,447	1,221,300
1838.....	307	531	37,171	3,260,271	13.93	42,818,180	8,278,181	1,728,784
1840.....	307	660	38,502	4,000,000	23.85	55,400,000	10,692,200	2,209,132
1844.....	307	.....	.....	4,500,000	.....	30,990,772	5,991,550	1,229,792
1845.....	.....	.....	.....	4,960,077	.....	.....	.....	.....

In point of rank, as a coal producing country, Belgium stands the second in Europe, and probably in the world; Great Britain being the first. France and the United States are about equal producers at the present moment, and Prussia is the fifth.

The following table shows the periodical prices of Belgian coals at the pit's mouth and the canals, per English ton of 10,146 metrical quintals, in Belgian, American, and English currencies:—

I. MONS DISTRICT.—A. AND B.						
Years.	Quality.	Francs.	Dollars.	s.	d.	Description.
1829.....	Best Coal...	15.00	3.00	12	0	Flenu Coals at the Pit.
1836.....	"	17.00	3.28	13	8	
1837.....	"	19.00	3.66	15	4	
1838.....	"	20.00	3.86	16	1	At the Canals.
6 yrs. to 1841.	Average....	13.00	2.75	10	6	Pit's mouth.
I. CHARLEROI DISTRICT.—C.						
1829.....	Best Coal...	18.00	3.47	14	6	Pit's mouth.
1836.....	"	22.00	4.24	17	9	
1837.....	"	23.00	4.43	19	0	
1838.....	"	23.00	4.43	19	0	At the Canals.
1843.....	Coking.....	7.00	1.35	5	6	Pit's mouth.
		10.00	1.93	8	0	
		13.00	2.50	10	6	
1844.....	Various.....	19.00	3.67	15	4	

* The value of the coal production of France, the same year, was 30,000,000 of francs. That of England, at the pit's mouth, about 225,000,000.

II. CENTRE DISTRICT.

Years.	Quality.	Francs.	Dollars.	s.	d.	Description.
1838.....	Large Coals.	.....	4.52	18	8	At the Canals

III. LIEGE DISTRICT.

1829.....	Aver. of best.	20.00	3.86	16	1	} At the Canals.
1836.....	"	22.00	4.24	17	9	
1838.....	"	25.00	4.82	20	0	
		28.05	5.50	23	0	
1830.....	Average.....	10.23	1.97	8	3	} At the Pit.
1832.....	"	17.54	1.45	6	1	
1834.....	"	7.82	1.51	6	4	
1836.....	"	10.95	2.12	8	10	
1838.....	"	13.95	2.70	11	3	

The following synoptical table of the principal coal districts of Belgium, exhibits the number and areas of concessions; the number of mines, of steam-engines, of horse-power, of workmen employed; the production of coal in tons, the mean amount raised annually by each miner, and the value of the coal at the pit's mouth in each division. Chiefly prepared from the "*Rapport au Roi*," published in 1842, by the minister of public works :—

Details.		Hainault or Mons, Tournay and Charleroi.				Luxemburg.		Liege.		Sum Total.	
Number of concessions in operation and dormant.....	1844	154	38	115	307						
Area of concessions, fixed and conditional, in hectares of 2,471 acres English each.....	1838	82,293	11,887	28,585	123,765						
	1843	.....	.....	.....	144,160						
Geological areas.....	.....	75,725	16,643	41,745	134,113						
	1829	274	45	103	422						
Number of pits in work, sinking, and in construction. "Sièges d'Exploitation,".....	1834	183	46	....	....				
	1836	290	69	111	470						
	1837	360	73	121	554						
	1838	441	90	121	652						
St'm-engines, raising coal & water, "deep'ing & sik'g pits	1838	203	13	90	} 374						
	1838	78							
Horse-power working the mines..	1838	9,160	170	4,480	} 15,861						
" sinking the pits.....	1838	1,051							
	1829	19,593	750	9,350	29,693						
	1836	20,880	889	7,375	29,144						
Number of workmen employed...	1837	23,011	1,043	9,349	33,403						
	1838	25,241	1,282	10,648	37,171						
	1841	25,635	1,865	11,002	38,502						
	1828	1,761,118	.....	570,084	2,331,202						
	1830	1,913,677	50,000	590,084	2,553,761						
	1836	2,349,374	79,174	627,916	3,056,464						
Production of coal in tons.....	1837	2,469,604	92,473	666,729	3,228,806						
	1838	2,415,909	103,954	740,400	3,260,271						
	1839	2,812,256	.....	.....	.....			
	1845	3,671,023	161,873	1,127,181	4,960,077						
Mean quantity of coal annually raised by each miner, in Belgium.....tons	1836	112.51	89.05	85.14	104.87						
	1837	107.32	88.66	71.59	96.76						
	1838	95.71	81.08	69.53	87.71						
Mean quantity raised in France...	1840	.....	.....	.....	115.36						
Value of the coal at the pits....fr.	1833	31,718,260	784,838	10,315,082	42,818,180						
Value of the coal raised in the kingdom of France.....frances	1838	.....	.....	.....	29,078,083						
	1844	.....	.....	.....	35,497,000						

EXPORTATION OF COAL FROM BELGIUM TO FOREIGN COUNTRIES.—The principal foreign markets for the coal of Belgium are, at present, France and Holland. Her government has made great efforts of late, to establish

new channels for the sale and consumption of her mineral combustibles. The exportation to France has a little diminished, between 1837 and 1840, and has subsequently much increased, while that towards Holland has steadily augmented.

Of the respective "debouches," or outlets for the transportation of this coal, we shall speak when detailing the separate statistics of the three principal mining districts.

The following table shows the total exportation of coal from Belgium, chiefly to France, from the official records, in Belgian kilogrammes, 1,014½ to each ton, and English tons :—

Years.	Kilogrammes.	Tons.	Years.	Kilogrammes.	Tons.
1829	.....	867,840	1837	800,649,729	789,600
1830	.....	621,560	1838	786,974,866	776,100
1831	471,614,528	465,100	1839	756,438,612	746,000
1833	583,523,091	575,450	1840	788,748,505	777,850
1834	660,013,705	650,900	1841	1,022,955,500	1,008,220
1835	702,203,891	692,500	1842	.....	1,014,715
1836	782,904,021	772,100	1844	.....	1,300,000

The following detailed table of the Belgian exportations of coal, shows the principal foreign countries to which this coal was exported, according to the published official documents, in relation to special commerce. The official returns of France appear generally to exceed in amount those of the Belgian; but we have not thought it necessary to quote them both in this place.

Years.	TO FRANCE.		TO HOLLAND.		TO ALL OTHER COUNTRIES.	
	Kilogrammes.	Tons.	Kilogrammes.	Tons.	Kilogrammes.	Tons.
1787	.....	49,280	.....	.....	.....	.....
1789	50,730,000	50,000	.....	.....	.....	.....
1802	88,097,710	86,830	.....	.....	.....	.....
1811	.....	93,630	.....	.....	.....	.....
1816	202,920,000	200,000	.....	.....	.....	.....
1820	.....	224,100	.....	.....	.....	.....
1830	.....	503,750	.....	.....	.....	.....
1832	.....	489,480	.....	.....	.....	.....
1833	.....	580,117	.....	.....	.....	.....
1834	.....	611,610	.....	.....	.....	.....
1835	691,653,190	682,100	5,172,831	5,100	5,377,870	5,330
1836	770,433,285	759,750	7,288,101	7,190	5,182,635	5,160
1837	790,369,264	779,450	6,685,400	6,590	3,595,065	3,570
1838	774,784,089	764,050	7,248,686	7,150	4,942,091	4,910
1839	734,051,986	723,900	17,551,106	17,300	4,835,520	4,800
1840	723,732,681	713,750	60,757,444	59,910	4,258,380	4,190
1841	916,127,600	902,944	.....	95,650	.....	3,416
1842	915,889,566	902,710	102,697,000	102,697	*	9,308
1844	1,115,794,900	1,096,057	.....	.....	.....	.....

BELGIAN IMPORTATIONS OF COAL, COKE, AND CINDERS.—Although a largely exporting country, Belgium receives on her frontier, and from occasional sources, a small supply of foreign coal. We derive the following details from the government returns. In regard to the imports from France, we quote the Belgian documents. Those of France generally represent the Belgian exports as greater, and the imports as less, than the Belgian returns.

We annex to this table a statement of the amount of foreign coals annually forwarded through Belgium to various countries.

* Tableau general du Commerce de la Belgique, avec les pays etrangers.

Years.	IMPORTATIONS.		From France.		COMMERCE OF TRANSIT.	
	Kilogrammes.	Tons.	Tons.		Kilogrammes.	Tons.
1831.....	.....	770	.....		2,100,000	2,070
1833.....	.....	7,979	.....		3,731,000	3,680
1835.....	15,583,625	15,350	14,930		6,617,100	6,085
1836.....	22,447,807	22,230	21,450		9,292,505	9,164
1837.....	28,416,835	28,020	26,070		11,566,126	11,406
1838.....	34,705,271	34,220	28,910		11,440,321	11,282
1839.....	28,364,548	28,000	22,150		.....	.....
1840.....	30,424,435	30,000	26,100		.....	.....
1841.....	36,980,600	36,440	28,936		.....	.....
1844.....	.....	.....	12,576		.....	.....

By the Belgian law of the 26th of August, 1822, the transit of coal arriving from one part of a neighboring state, and destined for another part of the same state, is only subjected to a duty of 40 centimes per 1,000 kilogrammes. This is after the rate of 0.39d. or 0.78 cent, per ton.

The quantity of coal which descended the Rhine, from the German provinces, into the Netherlands at Lobith, was as follows:—In the year 1841, 136,925 tons; in 1842, 101,610 tons.*

IMPORT DUTIES PAID ON ENGLISH COAL, PER TON.

	s.	d.	
In 1778, the import duty on British coal into the Netherlands, was.....	10	0	\$2.42
1814, and continuing until 1834.....	2	9	0.66
1840, to 1st April, 1842, 14 francs and 84 cents per 1,000 kilogrammes.	11	8	2.76
1842, 30th June, removed altogether.			

IMPORT DUTY PAID BY FRANCE.

In 1840, 3 francs, 30 cents per 1,000 kilogrammes.....	2	6	0.60
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Being a producer of coal on an enormous scale, the import of that combustible into Belgium, is of small amount. Until lately, the tariff of import duty on coals was greatly in favor of France.

There are no export duties on coal in Belgium, except a small one to Holland.†

Mons coal has risen in price since 1838, and the Belgian government has consequently acceded to the wishes of the home consumers, and of the British producers, to receive, from 1839, coals free of duty. By France a similar mutual boon has been granted; and the Belgian and French manufacturers are overjoyed at the concession.‡

EXPORT DUTY ON COALS PASSING FROM BELGIUM, BY CANALS AND RIVERS.—The law of the 30th June, 1842, was extended. By this law, Belgian coals passing to Holland, either by sea or by internal communication, were reduced 75 per cent on the duty then paid.§

The treaty between Belgium and the German Zollverein, 16th October, 1844, does not appear to affect the transit of coal. The reduced duty paid by Belgian coals, on entering France, is about 2s. 6d. per ton.

Respecting the following comprehensive general statistical table of the production, exports, imports, and consumption of coal within the kingdom of Belgium, which we have prepared from official documents and from some other sources, we have to premise that most of the details in the third and fourth columns, representing the importations and exportations, are those which commonly appear in the English statistical tables. In the preceding tables will be found the exact Belgian returns,

* Documents sur le Commerce extérieur. Janvier, 1844. † Ibid. Paris, May, 1843.

‡ "Arts and Artisans at Home and Abroad."—Jellinger Symons.

§ Belgique Legislation Commerciale. Janvier, 1844.

accurately rendered into English tons from French kilogrammes of 1,014.65 to the ton. The second column, representing the production, is reduced from metrical quintals of 10.146 to one English ton. The fifth column is that of the consumption on the spot, estimated at one-tenth, and not included in the second column.

Years.	Production at the mines.	Imported.	Exported.	Consumption on the spot.	Tot.consump. in Belgium.
1830,.....	2,533,761	.....	621,560	250,000	2,162,000
1831,.....	2,270,000	770	468,000	227,000	2,029,000
1832,.....	2,249,000	5,790	1,287,000	224,000	1,191,790
1833,.....	2,708,000	7,979	576,000	270,800	2,404,000
1834,.....	2,747,000	10,915	654,000	274,000	2,378,000
1835,.....	2,902,000	8,840	685,000	290,000	2,516,000
1836,.....	3,056,464	12,830	761,000	314,000	2,622,294
1837,.....	3,230,806	16,675	789,083	323,000	2,784,398
1838,.....	3,260,271	22,034	775,000	326,000	2,838,332
1839,.....	2,812,256	28,678	746,000	281,000	2,840,934
1840,.....	3,170,000	40,930	777,850	300,000	2,670,080
1841,.....	.....	36,440	1,015,194	.....	.....
1842,.....	.....	.....	1,014,715	.....	2,874,453
1843,.....	4,000,000	.....	.....	.....	3,290,728
1844,.....	4,500,000	.....	.....	.....	.....
1845,.....	4,960,077	.....	.....	.....	.....

Notwithstanding that Great Britain has the advantage of all other countries in the world, in having her coal, for the greater part, close to her sea-ports; yet her greatest European rival, in supplying the continental markets, is Belgium. The latter also has a competitor in Prussia, whose Rhenish provinces furnish extensive supplies to Germany and France. In both cases, the expenses of mining, or bringing the coal to bank, is fully as cheap as in England.

But if, as appears more than probable, from the report of M. Briavionne, the engineer-in-chief of the Belgian coal mines, all the coal which it is practicable to mine to advantage, in western Belgium, will be exhausted before twenty years, it is obvious that it cannot be the policy of that country to continue an exporting one, at least after a few years from this time.

We proceed to give a brief sketch of the separate coal districts which have been previously enumerated.

BASIN OF THE SAMBRE OR HAINAULT—in the western division, and in the provinces of Hainault and Namur. Within these provinces, and forming the *western coal division* of Belgium, are comprised three important coal basins, which are occasionally classed under the general denomination of the basin of the Sambre. These are:—

District I.	{	A. The basin of the	Levant of Mons,	{	Arrondissements
Prov. Hainault.		Couchant	"		Mons & Tournay.
	{	B. "	Charleroi,	{	arrondissem't of Charleroi.

The coal basin of Hainault extends in that province 13 leagues in length, by a mean breadth of $2\frac{1}{2}$ leagues, occupying $31\frac{1}{2}$ square leagues. It is covered by 106 communes, and 154 concessions, occupying a surface of 83,293 hectares, (205,817 English acres,) the population of which, in 1806, was 133,963 souls, and on the 1st of January, 1841, was 211,717 persons, being an increase of 58 per cent. This is a population of 6,829 persons to every square league, and therefore is remarkable for its density.* In Namur, this coal district covers 16,643 hectares more.

* Rapport sur la situation du Hainault, 1842, p. 30.

In the province of Hainault, we meet with all varieties of coal, from the most meagre, called by some authors *anthracite*, to the fattest coals, proper for the fabrication of coke ; including the flaming species, locally called *Flenu*, approaching to that of Newcastle in England, and sought after for its evaporative purposes.*

The annual amount of coal extracted from the basins of Hainault and Namur alone, exceeds the whole production of France.

We have shown the annual returns from the Hainault district, comprising the Mons and Charleroi basins, in a previous table. These show the progressive increase in the quantity of coals raised, from 2,345,374 tons in 1836, to 3,671,023 tons in 1845. The number of pits in activity and construction, increased from 274 in 1829, to 441 in 1838, employing 281 steam-engines, of an aggregate power of 11,211 horses, and 25,241 working miners. Coal raised in 1829, 1,761,118 tons ; in 1845, 3,671,023 tons.

I. MONS DISTRICT.—[A.]—Basins or sub-basins of the Levant, and Couchant of Mons, in the province of Hainault, arrondissements of Mons and Tournay. In 1840, these comprised 69 concessions, underlying 52,607 hectares, or 129,931 English acres. The local statistics of the mine are as follows :—Number of coal pits in activity and in construction, 87 in 1834, increasing annually, to 178 in 1838. Average depth of pits in 1838, 690 feet. Number of working miners, 16,896. Quantity of coal raised, in 1829, 1,361,965 tons, in 1839, 1,691,550 tons. The coals from the Mons District go to Brussels by the Charleroi canal. In 1843, 7,363 boats were loaded on the Canal de Condé, with 1,120,184 English tons ; in 1844, 7,898 boats, viz., 5,172 boats, despatched for Paris and intermediate ports, 734,014 tons ; 2,726 to Flanders, Antwerp, Brabant, &c., 503,916 tons, with 1,237,930 tons.†

In this district are 114 coal beds, among which the group *Flenu*, containing fifty-two seams, is the richest. In point both of quality and quantity, the most remarkable deposit of coal is almost entirely situated in the "*Couchant de Mons*," which here forms a band $6\frac{1}{2}$ miles deep.

The varieties of the coal of the Mons District, are sufficiently numerous and important to require classification, which is generally done under three distinct heads. These are :—

1st. The coal called *Flenu Coal*, from the locality in which it was first mined. This species burns rapidly, with much flame and smoke ; does not produce a very intense heat, during combustion, and gives out, commonly, a disagreeable odor in burning. The coke produced from it is too friable to be advantageously employed in the foundries. Fracture fibrous, rhomboidal ; sonorous almost as charcoal. Fifty-six seams of this coal occur near Mons. Mr. Dunn says that the quality of the Flenu coal is unlike anything in England, but is very similar to that of Swansea, in South Wales ; viz., a species of conglomerate, without hardness, or without those facings which characterise the coking coal of England.

2d. *The Fat Coal*—Divides readily in small cubes ; is more friable than the Flenu, gives less of flame and smoke, but produces a more intense heat. It is eminently proper for the forge, for the fabrication of coke, for the foundries, and for heating rooms, because it gives little or no smell, and burns slowly, swelling in the burning. This quality com-

* Rapport au Roi. Mines, Usines, Mineralurgiques, machines à vapeur, 1842.

† Commerce extérieur de la Belgique. Développement du Commerce Belgique.

prises two series of seams; the highest, called "glassy coal," contain twelve beds; the lower, comprising twenty-nine beds, called "large coals."

3d. *The Meagre, Lean, or Dry coal, and Anthracite*—has the same fracture as the fat coal; is still more friable, and does not coke in the fire, because it contains not sufficient bitumen, for which reason it will not make a good coke, and cannot be employed, except for gas-lighting. It is chiefly fit for the burning of bricks and lime. Not possessing any cementing quality, it does not obstruct the currents of air in the brick-kilns or lime-kilns, but burns very slowly, and gives out a regular equal heat. Thirty-four seams of this quality occur to the westward of Mons.

These three varieties of coal do not abruptly pass from one to the other; but merge insensibly into those gradations. The beds which are the type of the quality called *Fle nu coal*, are the first in the order of superposition. They acquire the quality of *fat coal* as they approach the lower part of the basin; in the same degree as the fat coals pass to the quality of *thin or dry coals*, of which the type is in the last beds of the bottom.

It is on record that in the basin of Mons there are no less than one hundred and fourteen seams of coal, all workable. A transverse section of this vast series, occurring in the mines of the neighborhood of Grand Hornu, was republished by Mr. Dunn, in 1844.

An authority of a yet later date announces a still more discriminating arrangement than the foregoing. In the following statement is specified the several beds and qualities of coal in the Mons basin, in the order in which they successively occur, from the exterior to the centre of the basin.

13 beds of *Dry coal*, good for burning bricks and lime.

23 beds or seams of "*Charbon de fine forge*," quality not pyritous; yielding 65 to 68 per cent of good coke. These seams are not all workable, and, in quality, are considered inferior, for forge purposes, to the coal of Saint-Etienne in France.

29 beds of "*Hard coal*;" bituminous, caking, giving a fine coke; used in foundries and high furnaces, and contains very little pyrites.

49 seams of "*Fle nu coal*."—This has given a high reputation to the basin of Mons, and forms the greater part of its "*exploitations*." It is a brilliant coal, not readily reduced to powder, eminently easy of ignition, burning with a long and bright flame. In a word, it is the coal, of all others, for steam-boilers.

114 beds in all; which, in general, vary from 18 inches, to 2 feet 9 inches in thickness; but some of them are upwards of 6 feet in thickness, and of much regularity.

The workings are carried on, in this basin, at a very great depth. Mr. Dunn examined some of them, in the Mons District, 180 fathoms, 1,080 feet, in depth, where they were working the *Upper or Fle nu beds*; and, as these collieries were known to be situated very near to the top of the basin, it was computed that a sinking of 900 fathoms, 5,400 feet, would be required to command the lowest coal.

Various modes and experiments have been adopted in the Belgian coal fields, for the purposes of lighting and ventilation. These important objects form the subject of numerous memoirs, which have been, from time to time, addressed to the government by men of skill and science.

Air pumps have been employed in some of the deep mines for extract-

ing the impure air. The first air pump was erected in 1830, in the coal district of Mons.

At the mine, "Sacre Madame," a pair of air pumps are worked by a ten horse power engine, each cylinder being six feet nine inches in diameter, exhausting 5,120 cubic feet per minute.

The most powerful air pump is that of L'Esperance, near to Seraing, which extracts 282 cubic feet of air per second, = 16,920 feet per minute.*

Mr. Dunn, an excellent modern authority, states, that in the neighborhood of Jemappe, the pits are worked at 347 metres, or 1,140 feet in depth. The Grand Hornu colliery, in the Mons district, which has been illustrated by the published section of its immense system of coal beds, is 990 feet deep.†

In the Produit mine, the twenty-nine upper seams are worked by one company, and the twenty-two seams below the first group belong to and are worked by another company. Sixty-nine other coal beds yet lie beneath the latter series, but have not yet been reached. To work the lowest of these, would, it is computed by M. Von Dechen, require a sinking to the depth of *five thousand four hundred feet*, at least, or, by the estimate of the Belgian engineers, to *six thousand feet* below the surface.

This portion of the coal field possesses great geological interest. It is covered by the chalk formation, of from fifteen to sixty yards in thickness.

In one of the shafts of the colliery of Grand Hornu, they have penetrated through 210 feet of overlying chalk, the lower twenty feet of which contain layers of flints. Between these and the ordinary coal measures, there appears to be only a bed of four or five feet of blue shale or clay. In many cases, this overlying chalk has been proved of the thickness of 400 feet, particularly in the French portion of the coal basin.

By direction of the government, the descent to and ascent from the coal mines is effected by separate shafts, in which ladders, often quite perpendicular, are placed for the use of every person employed in the workings. The fatigue and waste of human strength, in this laborious process, can scarcely be appreciated except by those who are practically conversant with the matter. The workmen are forbidden to descend in the *cuffats* or tubs which are used for the conveyance of the coals to the surface.

Some improvements for the convenience and safety of the Belgian miners have been latterly introduced. In 1845, a committee of French mining engineers visited Belgium for the purpose of examining a new machine for ascending and descending coal pits.

In 1844, according to the report of M. Briavionne, the coal mines of this district had been worked out to the mean depth of 810 feet.

BASIN OF CHARLEROI.—*Western or Hainault District, I. [B.]*—Properly speaking, this coal district is a prolongation of that of Mons, just described, which here attains its greatest breadth; being, at Charleroi, ten miles and a half from north to south, and twelve miles and a quarter in length. The population of Charleroi is chiefly occupied in working the coal mines of the district, and in the iron foundries and glass works.

In 1840, there were of fixed and provisional concessions 85, comprising 30,686 hectares, or 75,886 English acres.

* Dunn's View of the Coal Trade, 1844, p. 179.

† This part of the coal field is interrupted by an extraordinary series of doublings and zig-zags, which pervade all the seams, and which Mr. Dunn likens to the course of lightning.

The number of pits, in operation and in construction, were 96 in 1834, and 263 in 1838; their average depth, in 1838, was 300 feet. Number of working miners, 8,345.

Quantity of coal raised in 1829, 399,153 tons; in 1838, 724,360 tons; in 1839, 838,551 tons; in 1845, 1,453,946 tons. Three-sixths of this coal was of good quality, two-sixths middling, and the remaining sixth part inferior, called "houille maigre."

The facilities furnished by the coal of this district to manufactures, have given, latterly, a great impulse to that description of industry. At Charleroi, 4,000 mechanics, in 1836, and 6,000, in 1842, were employed in the manufacture of nails alone, besides several thousand workmen engaged in making the iron.

The coals from the Charleroi mines supply the great centres of industry—the blast-furnaces, the glass-houses, the refineries, &c., and a great portion of them go into Brabant, and down the Sambre and the Meuse. There is now, also, a railroad, for the conveyance of the coal from Charleroi to Brussels.

The Charleroi coal obtains a higher price at the pit's mouth, than that of Mons, as shown in the following statement:—

MONS COAL.				
Years.	Price per ton.			
1836,.....	7 to 8f.	\$1.50		
1837,.....	12 14	2.50		
1838,.....best,	... ..	4.50	or from 16s. 4d. to 19 10	

CHARLEROI COAL.				
Years.	Price per ton.			
1836,.....	13 to 14f.	\$2.47 to 2.66		
1837,.....	18 19	3.50 3.75		
1838,.....best,	... ..	4.06 4.96	or from 16s. 9d. to 20 6	
1844,.....do.	... ..	2.50 3.67	10 6 15 4	

We have not quoted the prices of the middling and inferior qualities, but they are, in general, only from two-thirds down to one-third of the above prices. It is impossible to be exact, as great discrepancies appear in the returns, and, moreover, great attention is required in designating the peculiar quality of coal quoted, from among such a variety of gradations.

It was in consequence of the great advance in the price, and the constantly increasing demand for coal in manufactures, that the Belgian government, acceding to the wishes of the people, admitted the English coal free of duty. We see that a precisely similar series of circumstances led, almost simultaneously, both the Belgian and the French governments to countenance the introduction of English coal, to the great advantage of the manufacturers of the first named countries.

Since 1826, fifty-eight large high furnaces, employing coke alone, have been constructed in Belgium. Their average production is about 3,000 tons per annum of cast iron, each. According to M. Drouot, the average cost of constructing each of these high furnaces, as well as the establishment of the kilns for the necessary fabrication of the coke, was 500,000 francs, = £19,312 sterling, or \$93,470.*

* M. Drouot, on the construction of the high coke furnaces at Maubeuge. *Annales des Mines*, Tome iv., p. 283. 1844.

The principal employment of the coal of the Charleroi district is in the state of coke, in these high furnaces.

At Charleroi, the different qualities of coal are distinguished by the three following names or divisions :—

I. Fat Coal—*Gras*. II. Medium Coal—*Demi-gras*. III. Lean Coal—*Maigre*.

Each of these qualities is sub-divided into classes, viz :—

Gros—Pieces selected at the mine ; picked large coal. *Toute-venant*—The remainder, after selection of the *gros*. *Gaillette*—A size smaller than the *gros*, but which must not be less than six inches square. *Gailletterie*—The coal which remains after deducting the *gaillette* and the *menu*, passing through a sifter of an inch and a quarter openings. *Menu*—The coal which is passed through a *crible*, or sieve, whose meshes are an inch and a quarter wide.

There are as many prices in the market, as correspond with these fifteen sub-divisions of quality.

II. PROVINCE OF NAMUR.—In this province, between the communes of Thon and Samson, is the point of division between the two great coal basins of Belgium. The eastern basin, or division, as has been previously indicated, is prolonged into the province of Liege, and even into Prussia. The western basin, after having traversed the province of Namur, following the valley of the Sambre, continues across the arrondissements of Charleroi and Mons, and passes into France, as before described.

The province of Namur contains portions of each of these two basins. That part which is within the limits of the eastern basin, is only about two leagues in length ; and its area, up to the boundary of the province of Liege, is estimated to contain about 2,317 hectares, or 5,725 English acres. The area which falls within the western basin, in this province, is about six leagues in length, with a superficial extent of 14,326 hectares, or 35,400 English acres. These two coal areas, therefore, which lie within the province of Namur, comprise, together, 16,643 hectares, or 41,125 acres.

NUMBER OF CONCESSIONS, FIXED AND CONDITIONAL.

Years.	Conces- sions.	Pits in activity.	Pits in construct'n.	Hectares.	Production in tons.
1822.....	4	62	...	.....	.....
1828.....	37	56	...	.....	.....
1836.....	37	46	23	.....	79,174
1838.....	37	57	33	10,516	103,954
1840.....	38	...	...	11,887	.....
1845.....	...	...	...	.....	161,873
					1828. 1838.
Maximum depth of the working pits.....			English feet	344	984
Minimum depth.....			"	35	32
Mean of all the pits.....			"	98	147

It is observable that, whilst the production of these mines has, during twenty years, been regularly increasing, the number of the shafts, serving for extraction, has diminished. This apparent anomaly is explained, by the progress of the arts of mining ; which, while reducing the number of the pits, yet enables a greater quantity of the combustible to be raised.*

The coals mined in this province are consumed, almost entirely, by the inhabitants. A small portion is exported to France by the Meuse.

* Rapport au Roi. 1842.

Through the facilities afforded by a ready supply of coal at Namur, the manufacturing of cutlery there, gives constant employment to 5,000 workmen. Namur has been styled the Sheffield of Belgium.

III. PROVINCE OF LIEGE.—*The Eastern Division, or Basin of the Meuse.*—This coal field extends through this province thirty-three miles ; its maximum breadth is opposite to Liege, where it is nine miles wide.

Before the treaty of peace, in 1831, Belgium possessed several mines of coal upon the right bank of the Meuse, in the province of Limburg ; but these collieries formed part of the territory ceded.

STATISTICS OF THE EASTERN COAL FIELD, IN 1838.

	Left bank of the Meuse.	Right bank of the Meuse.	Total.
Mines, or concessions, definite and provisional,.....	60	55	115
Definitely conceded,.....	33	35 }	
Provisionally appropriated,.....	27	20 }	115
Pits in activity and in construction,.....	64	57	115
Working miners,.....	6,273	4,275	10,648
Area of concessions,.....hectares	.....	.....	28,885
" " " " " " " " " " " " " " " " " " " " " "	.....	.....	70,631
Coal extracted, 1838,.....tons	.....	.....	740,408
Value of the coal,.....francs	.....	.....	10,315,082
Coal extracted in 1845,.....tons	.....	.....	1,127,181
Geological area of the coal basin,.....hectares	.....	.....	41,745
" " " " " " " " " " " " " " " " " " " " " "	.....	.....	103,151

The coal seams are exceedingly numerous, although less so than other parts of the Belgian coal fields. Sixty-one beds occur on the mountain of Saint Giles. On the subject of quality, it has been remarked that, although there is no position in this remarkable series where the best coal prevails, yet, in relation to individual coal seams, as in almost all mines, it is seen that the middle part, and the bottom of the veins, are always the places of the best coal, and that the upper part of the beds is almost constantly the poorest.

The number of pits at work in this district, in 1828, was 100 ; in 1835, 87 ; in 1838, 115 ; and in 1841, 138 ; at the present time they are yet more numerous. The mines, just without the gate of the city of Liege, towards Brussels, are about 720 feet deep. The deepest coal pit, that of L'Esperance, at Seraing, in this province, is 1,476 feet deep.

There is a generally received opinion respecting the quality of the Belgian coal, that the deeper it is pursued the more bituminous it becomes. M. Genneté states, that the greater or less thickness of stony or slaty strata, interposing between the coal seams, has no influence upon the coal itself. There is no relation or affinity with the different depths, in the series from whence they are taken. Thus, in the lowest veins, as well as in those in the middle, and those nearest the surface, are found the equal gradations of very good, of middling, and of bad coals.

One of the heaviest charges on coal, in Belgium, is the scarcity, and consequent high price of the timber required to support the mine workings. Notwithstanding the abundance of coal in this field, it is expensive, as the cost of raising it has been as high as ten francs per ton.

The produce of the Liege coal field is mostly consumed in the district. The surplus is conveyed to France and Holland—hitherto, almost entirely by the navigation of the Meuse ; but since 1836, railroads have been introduced, and are connected with several collieries.

By the official reports, it is shown, that the interior consumption, owing

to the great activity given to industry, particularly that of the metallurgic arts, nearly doubled itself between 1828 and 1838.

The production of coal in this province, in 1845, was 25 per cent more than that of 1844.

In 1842, upwards of 20,000 workmen were employed in Liege and the neighborhood, in the iron works. In fact, Liege may be regarded as the Birmingham, as Namur has been styled the Sheffield, of the European continent. As an instance of the amount of one department of manufacturing in Liege, it may be mentioned that, in the four years previous to 1839, there were manufactured here, fowling-pieces, 551,609; pistols, 276,795; muskets, 202,201; total, 1,030,605. The value of these articles, in one only of the four years, was estimated at 7,000,000 francs.

SMALL DETACHED COAL BASINS IN BELGIUM.—Province of Namur.—Besides the coal fields, already described, this province contains two small accessory basins, where the existence of coal has been recognized, although it has not been developed to an amount sufficient to establish a colliery.

Province of Limburg.—Here are three little isolated coal basins; that of Modane, of Theux, and of Bende et Ocquier. The last, only comprises two concessions or mines. The small basin of Theux has only received some unsatisfactory reconnoissances.*

PRESENT CONDITION AND PROSPECTS OF THE BELGIAN COAL MINES.—Mr. Dunn's recent investigations in this field, have led to some conclusions of an unexpected nature; and as the opinions of a practical authority are entitled to consideration, in an article like this, we cannot close this section without citing them. It appears that this writer is somewhat unfavorably impressed with the system generally adopted for the extraction of the coal within this deep basin.

"Notwithstanding the great and laudable pains taken by the government in the education of mining engineers, and the literary and scientific acquirements exhibited by many of them, in the publication of the different essays on the prevention of accidents in the mines, I am free to confess, that the result of my observation is, that a great deficiency exists in respect to safe and economical measures for carrying on these coal mines, especially in the deep mines which I saw."

The reasons which have led to this conclusion, are stated at some length. He adds:—

"I have been induced to go more into detail upon these matters, since I perused an extract from a report, lately made by the engineer-in-chief of the mines of the Borinage and of the basin of Charleroi, M. Briavionne, in which he predicts that, at the end of twenty years, the coal mines of Western Belgium will have arrived at the last stage of profitable working. He says, 'that the mean deepening of the pits has, of late years, progressed at the rate of 15 metres (= 49 feet) per annum; and, at the present moment, the works have attained a mean depth of 247 metres (= 134 fathoms, or 810 feet) in the district west of Mons, and 147 metres (= 80 fathoms, or 482 feet) in those of the centre and of Charleroi. Supposing that these workings be so equalized, as to reach altogether to the depth which they would seem not destined to exceed, that is, 500 metres, (= 268 fathoms, or 1,608 feet,) they would, before twenty years,

* Rapport, Statistique de la Belgique. 1842.

have arrived at this stage everywhere ; and the coal, (assuming it to be in abundance beyond this limit,) would be so costly and difficult of extraction, and so expensive, as to take it out of the reach of the common uses of this day.'

"This announcement," remarks Mr. Dunn, "comes with appalling force upon the numerous joint stock companies which were established in 1836, '37, when people thought themselves fortunate if they could only obtain a share in these concerns at ever so exorbitant a rate.

"According to the above quoted report of M. Briavionne, Belgium is travelling towards a momentous crisis ; and I am much inclined to confirm the writer's opinion, that, according to the present plan of carrying on the collieries, notwithstanding the high price received for the coals, yet that coal will not be found workable to profit, below the depth of 250, or 260 fathoms ; inasmuch as the deeper they go, the more destructive and unmanageable will be the effects of the pressure."*

At the present period, there appears to be no relaxation in the coal business of this country. Even in 1846, a new impetus was given to the working of the Belgian coal fields. The discovery of several very considerable coal seams, of excellent quality, was then announced, and some new concessions for the working of them were granted.

Belgium has but just recovered from the effects of excessive speculation, over-production, and the sudden establishment, a few years since, of a vast number of companies for working coal mines, before adequate markets could be established. A crowd of new men, adventurers, and speculators, without restraint, suddenly appeared, and exposed the honest producers to ruin by the rashness of these ignorant undertakers. Formerly, each worked with his own capital : all this is changed. Agents, having but little personal interest, managed the affairs of societies, justly named *anonymous*. Economy did not preside in the formation of a great proportion of those companies. They constructed superb palaces—they founded speculations upon exorbitant and transitory prices ; and, on the day of awakening, they found that they had squandered immense capital—had created the means of considerable production for an end which it was difficult to attain.

During the years 1835 to 1838, nominal capitals, to the amount of 800,000,000 francs, (£32,000,000 sterling, or \$155,200,000,) were employed in establishing companies, either anonymous or in partnership ; and of which capital, not less than 15,000,000 francs were actually expended in these objects.

Between 1830 and 1839, nearly £4,000,000 sterling formed the capital of new associations, which established themselves in Belgium for the purpose of working the coal mines.†

The faults that England committed in 1824 and 1825,‡ were, ten years later, renewed here. These errors have left their traces—a financial and commercial crisis yet presses upon Belgium.§

Of the 307 coal establishments which Belgium possesses, (1843,) 83

* View of the Coal Trade, by Mathias Dunn. 1844. P. 195.

† M. Briavionne, "Sur l'industrie de la Belgique." 1839.

‡ In 1824, and the first months of 1825, the Parliament of England authorized the formation of 276 companies, whose aggregate nominal capital was £174,114,060 sterling, or 4,352,850,950 francs, = \$842,712,000.

§ Bulletin de la Commission centrale de Statistique. 1843.

have been acquired since about ten years, by anonymous societies. The relative position of the old and the new establishments, in 1834, was as follows :—

The 83 new companies produced in 1834,	899,871 tons of coal from	92 working pits.
The 224 old establishments	" 1,543,697 "	" 249 "

Total in the kingdom,.....	2,443,568
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The 83 new companies produced in 1838,	1,285,427 tons of coal from	271 working pits.
The 224 old societies	" 1,974,844 "	" 389 "

Total in the kingdom,.....	3,260,271	660
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The increase in the number of mines, or sites of extraction, during these last years, or from 1834 to 1838, is much more perceptible among the new series than in the old establishments. While the latter have increased at the rate of 56 per cent, the former advanced their points of production at the rate of 194 per cent.

The influence of capital is also seen in regard to production. While the old associations increased at the rate of 24 per cent, the anonymous societies advanced their production, in the same term of years, 42 per cent.* We have no means of pursuing the parallel to a later period.

M. Desmaisières, minister of public works, the author of the Report from which we have so freely quoted, thus concludes this branch of his subject : " Since 1838, to a state of fictitious prosperity has succeeded a crisis but too real. The nation has expended in vain, in behalf of mineral and metallurgic industry, resources which might have been better employed ; but whatever evils may have befallen the adventurers, they have had the effect of benefiting the consumers.

" In order to form an accurate judgment respecting the operations of the past years, we must await the results of an ulterior experience. We have desired only to prove and exhibit a great characteristic fact, and to deduce from it the approaching consequences.

" Belgium will always find in the industrious and persevering spirit of her population ; in her habits of economy ; in the riches of her soil ; in the improvement of her means of communication, already so numerous, the elements of success and prosperity. The confidence which we have in the future, must not make us conceal the imprudences which have been previously committed. The situation of things, as revealed by the details of this report, can only be that of a people advanced in industry. We are now enabled to develop our forces and our resources : the future is for the workers."

M. A. Visschers, writing at a later period, expresses corresponding opinions, and considers that it is not so much the facilities of production that are necessary to Belgium, as outlets for her coal and iron. For those who, in preceding years, had favored the false movement of accelerated production without an adequate market, it seems as if they had entertained but one care—that of realizing the finest industrial schemes : they troubled themselves very little about the future.

" An *industriel* of this époque naively communicated to us his projects. When we asked what he would do in the event of his obtaining no sale for his coal, ' We will construct,' said he, ' high furnaces.' ' But if you

* Rapport du Roi. Statistique de la Belgique, XLVII.

could not sell your pig iron?' 'We will fabricate the iron; we will erect workshops for construction.'

"It was the skilful mechanics who held this language; not the true economists. The greatest, the most ingenious of these, Mr. J. Cockerill, is an example. There was no enterprise originated in which he did not conceive himself competent to bear a part. In the last years of his life, he showed us the list of the industrial establishments with which he was connected. This list numbered seventy-two undertakings, all created upon the grandest scale. This man, to whose memory his workmen desire to erect a statue, has perished, like all men of genius, by the abuse of his principle."

To the sounder views of the present producers Mr. Visschers renders due homage. "They have placed, at length, the question of production upon its true basis; they endeavor to lower their costs; they limit themselves to solicit, from the government, improvements in the interior channels of communication, and its assistance in negotiating treaties of commerce with neighboring people. These are the certain pledges of success for the future. The market, now-a-days, belongs to those who work the best and the cheapest; outlets (*debouches*) increase by the creation of new avenues for transportation, particularly the railroads; international relations are ameliorated; barriers are lowered before the reciprocity of interests.

"With the resources which the soil of Belgium presents, we ought not to despair of making up for the losses of the past. We have drawn, from the history of preceding years, a confirmation of this principle in political economy—that labor is the sole source of wealth. To the efforts of the intelligent, then, we look for repairing the evils which imprudence has occasioned."*

The spirit of mining enterprise is again in great and successful activity in Belgium, arising from the great demand for coal and iron, from the neighboring countries. Among others, a French company, called the "*Société des Charbonnages Belges*," headed by Baron Rothschild, in 1846 obtained a royal ordinance, creating it a *Société anonyme*. The objects of the company are, the acquisition of coal pits, mines, railroads, and iron-furnaces in Belgium; the charter to exist for ninety-nine years, with a capital of fifteen millions of francs. It is calculated that it will exercise great influence on the coal trade, by increasing its supplies, and finding it new markets,—particularly in France, through the means of the Great Northern Railroad, which is in the hands of the same parties.†

CONCESSIONS, fixed and provisionary—"Attribuée provisoirement."—The ancient custom in Belgium, as explained in the "*Statistical Bulletin*" of 1843, was to limit the number of coal seams (to be worked) in the leases. Different lettings took place within the same area; each company, in turn, being empowered to sink through the others' concessions, in order to reach its own. This state of things has always occasioned great inconvenience and confusion. The government desires to remedy this evil; but it cannot do so effectually, so long as the existing leases are in force and unexpired.

* De l'état actuel de l'exploitation minérale et de l'industrie métallurgique en Belgique.

† Paris correspondent of the Mining Journal, May 23, 1846.

ROYALTY RENTS.—The law of the 24th of April, 1810, fixed the principle as follows :—1st. A *fixed*, or *sleeping rent*, in proportion to the extent of coal leased, or promised to be leased, and is regulated accordingly, from time to time. 2nd. A *proportional rent* (redevance) is fixed annually by government, which rent is levied, not exceeding 5 per cent, upon the nett produce of the mine. The mode of taking such amount is regulated by an imperial decree of the 6th of May, 1811.

Subsequently to the year 1823, the *tonnage rent* has been fixed at 2½ per cent, upon the nett produce of the mines.

Since 1834, there has been comprised in this amount, the sum which is annually paid by the Society of the *Vielle Montagne*, amounting to 7,500 francs.*

The following is a condensed statement of the periodical amount of these rents :—

Years.	Fixed Rents.	Proportional Rents.
1823.....	14,244 francs.	99,919 francs.
1830.....	17,986 “	96,148 “
1835.....	16,701 “	51,678 “
1838.....	15,761 “	170,571 “
1840.....	15,910 “	141,040 “

Previously to this epoch, the laws, enacted in 1816 and 1819, had established an excise impost (*droit d'accise*) upon coal. The suppression of this tax was regarded as a benefit by the explorers of mines.

PREPARED FUEL.—In Flanders, and in several parts of Germany, particularly in the Duchies of Juliers and Bergens, where coals are in use as fuel, they are commonly prepared by pounding the pieces to powder, and mixing them up with an equal quantity of clay. The mass is kneaded together into cakes, which, after being well dried, are kept dry for use. Precisely the same process is now adopted in South Wales, where it has been in use from time immemorial, as it also has been similarly employed in China.

It has been found by long experience, that the expense attending this preparation is amply repaid by the improvement of the fuel. The pulverized coals, thus mixed with clay, not only burn longer, but give much more heat, than when they are burned in their crude state.

It will doubtless appear extraordinary to those who have not considered the subject with some attention, that the quantity of heat, produced in the combustion of any given quantity of coal, should be increased by mixing those coals with clay, mud, or ooze, which are obviously incombustible bodies, but the fact is certain.†

PEAT.—This vegetable substance is of great value as a cheap fuel for the poorer classes, and abounds throughout the country, particularly in those parts of it which are most remote from coal. However, in this instance, Belgium, which is so productive in the mineral combustible, is less bountifully supplied with peat, its substitute, than is her neighbor, Holland, which possesses no coal mines. Thus have the gifts of nature been impartially distributed ; for it is a fortunate provision of Providence that those northern and temperate regions to which coal has, in many instances, been denied, seem best fitted for the production of those aquatic plants which

* Rapport au Roi. Mines, Usines mineralurgiques, machines a vapeur, 1842—p. 431-3.

† Gray's Operative Chemist.

contribute to form turf or peat ; and as fuel in those regions is indispensable to man—is one of the first necessities of his life—the absence of mineral coal is, in a great measure, compensated for, by the abundant and reproductive supply of a vegetable fuel whose useful and multifarious properties are every day becoming more apparent.

We may be permitted to add here, that animal remains, possessing considerable interest, are occasionally extracted from the Turbaries of Belgium. A jaw of a dog was found not long ago, at the depth of ten feet, which M. Puel, to whom this relic was committed for examination, recognized as belonging to the variety known as the Esquimaux dog.*

CANALS OF BELGIUM.—The total length of navigation, by the twenty-two finished canals, is 286 English miles ; and other lines are in progress. All these are, for the most part, supported by the transportation of coal and iron. The tolls upon them are reasonable ; the works are carefully maintained, and, consequently, they yield great service to the country.

NAVIGABLE RIVERS, in 1846—598 miles. Hence there is a total extent of inland navigation of 884 English miles.

RAILROADS.—Nothing has had so beneficial an effect on the Belgian coal trade as the establishment of railroads, during the last ten years. In fact, "Belgium is the first State in Europe in which a general system of railways has been planned and executed by the government, at the public cost ; and, certainly, it is an honorable distinction to have given the first example of such a national and systematic provision of the means of rapid communication."†

The number of railroads now in progress and projected, added to those already in operation, is really extraordinary. No country in the world, in proportion to its extent, will possess so many miles of railway as Belgium. All this result is owing to the prevalence of those vast depositories of coal and iron within her boundaries.

In 1842, there were in operation, in this kingdom, 282 miles of railway ; the average cost of constructing which was £12,120 sterling, or \$58,660 per mile ; which is less than half the average cost of railways in England, and more than double the cost per mile of the completed railroads of the United States. On the 1st of January, 1846, there had been constructed, in this country, seven railways, whose aggregate length was 386½ English miles, at a cost of £5,789,872 sterling, or \$28,022,980—averaging £16,600, or \$80,344 per mile.

In Great Britain, the average cost of 1,900 miles of railroad, up to 1846, was £34,710, or \$168,000, while the 4,865 miles completed in the United States, (many of them single tracks only,) cost £5,564, or \$26,932 per mile.

STEAM-ENGINES.—The first pump, worked by means of fire, was established at Liege, about the year 1723. In the arrondissement of Charleroi this system was introduced in 1725—an epoch distinguished by the establishment, at Lodelinsart, of the first steam-engine, by a Liégeois, named Matheu Misonne. In the district of Mons the first steam-engine was erected about the year 1734.

The first machine, for the double purpose of drainage and the extraction of coal, was erected in the province of Liege, in 1810, at the colliery of

* Bulletin de la Societe Geologique de France. Tome X., p. 118-126.

† McCulloch's Belgium.

Plomterrie ; but in the province of Hainault, engines of this description have been in activity since 1807.*

In France, the first steam-engine, employed for draining a coal mine, was erected in 1749, at Litry ; and it was in the same mine, in the year 1810, that they employed, for the first time, steam-power to raise the coal.

The number of steam-engines employed in the Belgian collieries, in 1839, was—

	Engines.	Horse Power.
In extraction or raising the coal,.....	266	of 6,846
In draining and pumping the mines,.....	102	" 8,636
In the purposes of ventilation,.....	8	" 122
	<hr/> 376	<hr/> 15,604
The total number of steam-engines, in all Belgium, engaged in mining, manufacturing, and navigation,.....	1,049	26,056½
Or, including the 122 locomotives of 6,053 horse power, on the State Railroad,.....	1,171	32,109½

Since this return, the numbers have greatly increased.

Art. III.—LEGISLATIVE POLICY OF MAINE :

WITH REFERENCE TO THE SUBJECT OF CORPORATIONS.

It is a prominent characteristic of a republican people, to be distrustful of associated power, where it wears any feature of exclusiveness. Experience proves, that this is not the result of the promptings of patriotic principle in the abstract—teaching that “power is always stealing from the many to the few,”—but is nearer akin to the natural selfishness and cupidity of the human heart all over the world ; for few men, indeed, decline the opportunity of concentrating in their own hands, the power of both privilege and wealth, notwithstanding their extreme jealousy of it in the hands of others.* The difference between *meum* and *tuum*, is the most ancient of discoveries ; and always has been, since the origin of language among men, and always will be, until the millennium shall dawn, held good between nations, communities, and even individuals of the same domestic circle. It is not wisdom to attempt a suppression of this distinc-

* Bulletin de Commission Statistique. Royaume de Belgique, 1843.

† Bourrienne, in his Memoirs of Napoleon, furnishes a notable illustration of this truth. He says of Bonaparte :—

“His great actions—his brilliant enterprises, always crowned with success—his devotion to France—the justness of his conceptions—all concurred to point him out as the man most capable of making the country of his adoption great and happy, and of establishing public liberty. Bonaparte was deficient neither in devoted views, in knowledge, nor in the necessary acquirements ; but the will alone was wanting. For who, in fact, could have supposed that, having obtained the supreme power, he would have availed himself of it to trample under foot all the principles he had so long professed, and to which he owed his elevation ? Who could have believed, that he would have superseded, by the most absolute despotism, that constitutional liberty, for which France had so long sighed, and for the peaceable enjoyment of which she had made so many sacrifices ? But so it is : when his ambition had been gratified—when he had sacrificed every thing to gain his point—we see him re-establishing the principles which he had combated, and defending them with equal energy.”

tion—to blot out the ambitious impulses to which it gives birth; simply, because, however universal might be the repose of human passions that would follow, if accomplished, the thing is utopian in conception and utterly impracticable. As a theory to gaze at, through the mind's eye, for amusement, as boys delight in the illusions of the magic lantern, it may not be without its usefulness. But sterner admonitions summon the master spirits of the business world to a different study—to contemplate men, things, and the thousand relations of life as they really are, and not as they might be presumptuously preferred by visionary enthusiasts; and, with a clear vision, to regulate, detect, and combine them, so as to promote the greatest amount of individual and personal happiness, wealth, and power, consistently with the common welfare and common rights and privileges of the entire associated community. It is folly to teach men to do this labor with a view of making the general welfare the first, and their individual interests the second point, in the series of their ambitious efforts. The man who pretends it, stands accused of falsehood in his own nature; and if any sincerely believe, themselves, in such pretensions, they are victims of a credulity that exposes them to the impositions of the crafty, and the pity of all sensible observers.

All republican governments are founded in this selfishness of the individual, as contrasted with a preference for the mass. It is an error that supposes republics proceed from the liberality of mankind. Exactly the reverse is true. They are the offsprings of individual selfishness, acting upon a large scale, and risen to strength equal to its own protection against the same principle exerted by a few. It is the highest virtue of republican governments, in fact, their esteemed superiority over all other forms, that they exact so little sacrifice—so small surrender of individual liberty, rights, and privileges, to the welfare and protection of the people. The converse of this, is the measure of advantage secured thereby to each individual—to the many. It is the amount of protection yielded to the principle of selfishness, that is inherent to man. Under all other forms of government, the paramount characteristic is, the sacrifice of the rights and privileges of the many to the advantage of the few, and is seen, also, in the great disparity of the loss and gain which the many thereby suffer and enjoy from their government. The perfect popular government, therefore, only touches to direct, or regulate, the fewest possible number of individual interests, but it leaves all others to the control of individuals themselves. Yet individuals, severally, being too weak in means to accomplish large enterprises, need to invoke the creation, by the government of the people, of what are called corporate laws, by which many persons, and the means of many, are associated as one individual, and made a corporation. It is through this device, that a government may encourage the grandest results of art, science, and industry, without entrenching at all upon the common stock of reserved liberty, working out thereby the incidental advancement of the whole people, and without involving its own means or accountability to any extent, or exacting any contribution of means from any citizen who does not elect to make it, and is not induced to make it with special reference to his own personal benefit, viewed as paramount to that of all others, the "dear public," included. Nor is it liberal in any government to withhold these privileges of association, wherever it is not clear that a direct advantage is to result therefrom to the government, or to grant them only on the condition of receiving to it.

self some such direct advantage. Such a condition involves the injustice of taking private industry for public uses, without an equivalent taken from the public. A grant that takes nothing from the public stock—that involves no monopoly, or exclusive privileges, should not have a price set upon it at the expense of those who furnish the needful enterprise to improve it. But, wherever a case establishes, as the resulting consequences of an act of incorporation granted to individuals, the probable advancement of those individuals in wealth and happiness, and in incidental usefulness to the community where their scene of action is chosen, there it is but the part of wisdom, of sound policy, and productive liberality, in the government, to grant the act. And it is now a matter of history, that just in the ratio of an observance of this course, by any State government of the Union, towards individual enterprise and means exerted through corporate powers conferred for the purpose, the whole people of that government have prospered, and advanced in wealth, strength, and influence. Witness what the old Bay State government has accomplished, in this way, for her citizens. Perhaps, in the wide world, there is not another people among whom is so generally diffused education and wealth, or the elements of profitable industry and comfortable subsistence, within every man's easy attainment. And it is there, where legally incorporated means have been more largely resorted to, because more liberally encouraged, than in any other State. And what a contrast—a mortifying contrast to many, in this respect—does the history of her offspring, Maine, exhibit, from the day of the latter's majority, or recognition as an independent State, until very recently! And who can calculate the amount of retardation, which population, enterprise, wealth, and the resulting influences of all these elements, have suffered in the meantime, in Maine, from this short-sighted jealousy of incorporated means and privileges?

With three hundred miles, indented at all points by convenient, safe, and accessible harbors—with rivers and streams everywhere inviting improvement, and furnishing exhaustless motive powers, of every magnitude, for mechanical and manufacturing purposes—with quarries of granite and marble, or limestone, for both useful and ornamental architecture of every conceivable order, and in quantities to defy the uses of the entire continent—with forests of timber trees of every necessary kind, or useful purpose, in no less abundance—with mines of various ores, and soil, fertile for both grazing and tillage as rational industry need covet, and a climate healthy as any on earth—what, but the want of a liberal and fostering policy on the part of the State government, during the last twenty years, has kept energies so mighty from being improved, multiplied, and extended? The State has been drugged with narcotics, until its sensibilities became hardened against the poisonous influence, and roused itself under the promptings of self-condemnation and shame. Even now, her progress is slow, but quickening, and will not, it is fondly hoped, again be stayed. The contrast between her past and present policy, towards the associated enterprise of her citizens, is cheering and creditable. While the encouraging aspect of some industrial pursuits of her citizens, at this time, reflects the highest praise upon her more liberalized State policy towards them, it casts backward the sternest rebuke upon what that policy has been in other years, and what it still is, in respect to some. For example, on the subject of taxing manufacturing interests during their infancy, her policy has been unsteady and jealous. The first decided act of encourage-

ment held out to manufacturers of cotton, wool, iron, and steel, in the State, was in the provisions of a law, passed February 7, 1825, which were to exempt from taxation the shares, property, or stock, real and personal, of such manufacturers as should thereafter be incorporated, for a period of six years from the date of their charters; and exempting all such previously incorporated property—that is, for the manufacturing of wool, cotton, iron, and steel, for a term of five years from the date of this exemption act. Yet a condition was annexed, that not less than \$30,000 should be so employed, by the company seeking the exemption.

But in 1831, this legislative encouragement was withdrawn so far, as to subject the real estate of all such corporations as should thereafter be created, to taxation, at the appraised value of it at the time of its purchase, and not higher, for a period of six years from and after the date of the act of incorporation.

In 1834, the legislature relaxed, by special act, the policy of the act of 1831, so far as to exempt one particular company, the "Portland Manufacturing Company," from taxation, for a term of three years, and extended to it the provisions of the act of 1825.

In 1836, however, the anti-corporation spirit had obtained such a new vigor and ascendancy, in the politics of the State, as to effect an absolute repeal of the entire act of 1825, in respect to all subsequent corporations.

In 1840, on a general revision of the laws of the State, under the same dominant party influence, the provisions of the act of 1831 were also repealed, and no corresponding re-enactment substituted. Nor has its like been subsequently renewed. Yet one would hardly suppose the State to be beyond the desire of multiplying these sources of industry and wealth within her borders, or that a sound policy could fail to add largely to their encouragement. It is, however, true, that in the tax act of the State, "the machinery in cotton and woollen manufactures," except "carding machines, used for the purpose of carding rolls from sheeps' wool," have been usually exempted from taxation.

Upon the question of rendering individual stockholders liable for the debts of their corporations, the legislative policy of the State has been equally vacillating and discouraging. Yet now, the popular inclination is believed to have reached a more just and liberal comprehension on the subject.

By the act of the first legislature of the State, March 15, 1821, if an execution, recovered against any manufacturing corporation, were not paid, after demand made upon the president, treasurer, or clerk, before the return-day of the execution, or sufficient personal estate shown, belonging to the corporation, to satisfy the debt, *the body*, and the real and personal property of each member of the corporation was subject to be levied upon, to satisfy the new execution, (*capias satisfaciendum*), as also that of each person who was a member at the time the debt was contracted. This was a transcript of the provisions of the old law of Massachusetts, in 1809.

The stringency of such a law being obviously injurious upon the interests of the State, by discouraging individuals from becoming stockholders in such corporations, the legislature, in 1823, exempted corporators from this individual liability after August of that year, *provided* their corporation published yearly a statement of the assessments voted and paid in, and made no divisions of their capital stock, or any part of it, or of any other property or debts belonging to it, except nett profits, until all the debts of

the corporation had been paid ; *and provided, also*, that the agent or director of the corporation should deliver to any officer having an execution against it, a schedule of all the property of the corporation, including debts ; and for want of other property, should transfer to the creditor enough of such debts to satisfy the execution. But, in case these provisions were not strictly complied with, the personal responsibility created by the act of 1821, continued.

This was one step towards a judicious modification of the general policy of the State. Another was taken in the act of February 12, 1828, which repealed the above proviso, so far as it provided "that the members of such corporation shall in any event be personally liable for the debts of such corporation." The last named act also imposed a penalty of "not exceeding two thousand dollars, or imprisonment for a term not exceeding twelve months," on any director, or other officer, or member of such corporation, who should "be convicted of voting or aiding" in dividing "the capital stock, or any part thereof, or any other property, or debts belonging to such corporation, until all the debts due therefrom shall have been paid ; saving, however, the right to make dividends of the nett profits arising from the capital stock." And all sums received by any member, from such a division, were made liable to be recovered back by any creditor of the corporation.

But the anti-corporation policy of 1836, which, as we have already seen, revived the system of unrestrained taxation against infant manufactories, also struck at their increase, by reviving the liability of the individual property of members for corporation debts, thus :—

"In all corporations *hereafter* created by the legislature, except banking corporations, unless otherwise specially provided for in the act of incorporation, the shares of individual stockholders shall be liable for the debts of the corporation."

The same act also provided, that in case of a deficiency of attachable corporate property, the individual property of the corporators is made liable for all debts of the corporation, contracted prior to the corporator's transfer of his stock ; and also for a period of one year after the "record of the transfer in the books of the corporation, and for the term of six months after judgment recovered against the corporation in any suit commenced within the year aforesaid, and the same may be taken in execution on said judgment, in the same manner as if" it were against him individually ; but the amount of this liability of the individual stockholder was not to exceed the amount of his stock. The corporator could avoid this liability only by showing corporate property sufficient to satisfy the debt. The body of the corporator, however, was not exposed anew, as it had been under the law of 1821, to arrest and imprisonment for corporation debts.

The legislature of 1839, (act of March 21, 1839,) took another stride in the same direction, and subjected to the provisions of the act of 1836, the members of all corporations, (excepting for banking, literary and benevolent purposes,) that had been created since March 17, 1831, as it regards debts thereafter contracted. The act of 1836, it will be observed, was limited to corporations created only after its date.

On a general revision of the Statutes of the State in 1840, the provisions of 1836 and 1839 were adopted, only so far modified as to further limit the

stockholder's liability, in his private property, to such corporation debts as should be "contracted during his ownership of such stock."

But on the following year, (act of April 16, 1841,) the legislature again repealed this individual liability for corporate debts, on condition that the treasurer of the corporation published a statement under oath annually, of the capital paid in, and debts due from the company, and provided the corporate debts do not exceed 50 per cent of the capital paid in. It was a Whig legislature that now had the ascendancy. But in 1843, (act of March, 22, 1843,) the act of 1841 was absolutely repealed; and this repeal of the repealing statute operated to revive, and bring again into force, the individual liability provisions of the act of 1840.*

In 1844, yet another turn was given to this unsteady policy of the State. The act of March 21, 1844, provides that the treasurer of every manufacturing corporation shall publish, semi-annually, in January and July, a statement, under oath, of the amount—

- 1st. Of all assessments voted by the company, and actually paid in.
- 2d. The nett amount of the then existing capital stock.
- 3d. The amount of all debts due from the company.
- 4th. The amount of capital stock invested in real estate, buildings, machinery, and other fixtures.
- 5th. The last estimated value affixed to the real estate of such corporation, by the assessors of the city or town in which the same is located, and the aggregate value fixed to all the taxable property of such corporation, by such assessors.

It further prohibits the corporation from contracting debts, exceeding at any time the amount of the capital invested in real estate, &c., or exceeding one-half of the amount of capital paid in, and remaining undivided. By complying with these, among other, requirements, the corporators are relieved from all individual liability for the debts of the corporation; but in case the debts of the corporation exceed the limitations specified, the stockholders at once become liable for *all* the debts of their respective companies.

For the two succeeding years the laws of the State have reposed *in statu quo*, on this subject. But, under a general provision of the act of 1821, all manufacturing corporations were subject to such alterations, or to an entire repeal, as the legislature might determine. And, by the legislature of 1831, all acts of incorporation granted thereafter by the State, were made "liable to be amended, altered, or repealed, at the pleasure of the legislature, in the same manner as if an express provision to that effect were therein contained, unless there shall have been inserted in such act of incorporation, an express limitation or provision to the contrary." And such still continues to be the law of the State.

This review of the vacillating legislation of the State, by which alternate encouragements and discouragements have been held out to corporate bodies, will account largely for the immense disparity that still exists in the State, between the facilities for the multiplication and prosperity of manufacturing interests, and the actual improvement of them. Foreign capitalists are virtually repudiated by an illiberal policy. No capitalist feels safe in embarking his fortunes upon a coast where the bottom is as

* The simple repeal of a repealing statute revives the original statute. *Commonwealth vs. Churchill*, 2 Metc. 118, *Com. vs. Mott*, 21, Pick. 492, 502.

unstable and shifting as the waves that roll over it; and where no pilot can calculate or know the soundings for a day in advance. And no more safe is it for him to trust his interests to the protective grants of a State, which are liable yearly to be utterly changed, or exposed to regulations that are alike disreputable to the integrity of his enterprise and vexatious to the even tenor of its ways.

In respect to works of internal improvement, and especially towards railroad corporations, the policy of the State is becoming judiciously liberal. The liberality of the State towards the Cumberland and Oxford Canal Corporation especially, some years since, and towards some few kindred enterprises, has been worthy of all imitation and praise. But it detracts largely from this disposition to commend, to reflect that the few instances of State liberality of this character, that have occurred, compared with the wide field and grand results attainable, that have been open and have invited State encouragement, wear more the aspect of accident, or legislative *ruses*, than of a settled, enlarged, progressive State policy. There has, however, within a short time been accomplished in this direction, an advance, that promises to become an invincible pioneer in wakening up the people of Maine to a consciousness of their aggregated strength, in works of great resulting benefits to the public. The reader will understand this allusion to be, to the charter that has been granted to the Atlantic and St. Lawrence Railroad Company. Here the State Legislature has been brought to grant a *perpetual charter*—a right to hold property of an *unlimited amount*, both within and without the State, (consistently, in respect to the latter, with the *lex loci*, of course)—to exact tolls of passengers and freight, according to its own discretion, and *without legislative restraint*—to be exempt from connecting with any other railroad at any point whatever, on the entire westerly side of its length, *without its own consent thereto*—to exempt its real estate from all other taxation, by the several towns or cities where situated, than that to which private persons' real estate is subjected, and then to be valued only as "other real estate of the same quality in such town, city or plantation," is valued—to be forever exempted from all other taxation, than a division with the State of the nett income of the road, after it shall exceed 10 per centum per annum—and an exemption of the charter from being ever "revoked, annulled, altered, limited or restrained without the consent of the corporation, except by due process of law." It has also fifteen years within which to complete the construction of the road.

Taken all in all, since the days of Charles II., a charter of broader privileges, and of more valuable exemptions, has not been granted by any government, touching any interest within the boundary of any old or new State of this Union. One bright, encouraging example of this character, tends immensely to liberalize the whole public mind and feeling. It holds out to a hitherto pent-up legislation and people, richer promises of advancement in works of improvement and public grandeur, and of the countless advantages that accrue therefrom to an industrious population, than a dozen revolutions back and forth in the party politics of the State, by which personal ambition alone is exalted or debased, producing results which, with the persons themselves, are forgotten in a few short years at most. This charter, moreover, in the history of its inception and progress, bears conclusive illustration of the prefatory sentiments of this article, in respect to the difference of *meum* and *tuum*, in the exercise of power or privileges.

For, many of the ablest, as well as earliest and steadfast friends of the charter, with all its latitudinarian powers, once were reckoned among the astutest guardians and advocates of legislative restrictions upon corporations, and among the most formidable antagonists of the whole doctrine of vested rights in corporations. But poor indeed would be the worth of our experience and observation, if we were divested of the privilege of bettering our judgments and growing wiser in the practical offices of life—of abandoning the errors of previous short-sightedness, and correcting the illiberality of our prejudiced opinions. Let Maine, and her citizens, rising above the confined policy of mere partizan legislation, exult in bearing aloft to the vision and imitation of her sister States, in works of substantial public grandeur and individual wealth, her proud motto—"DIRIGO." And to do this, let it not be forgotten how potent to serve or destroy such efforts, is the influence of legislation, according as it be liberal and steady, or illiberal, vexatious and vacillating.

ART. IV.—EFFECTS OF INTERNAL IMPROVEMENTS ON COMMERCIAL CITIES:

WITH REFERENCE TO THE PENNSYLVANIA CENTRAL RAILROAD.

TO THE EDITOR OF THE MERCHANTS' MAGAZINE AND COMMERCIAL REVIEW.

IN the present paper I have endeavored to collect some few facts and arguments in relation to the Pennsylvania Railroad, and its supposed influence on the trade and commerce of Philadelphia. To facilitate the formation of a correct opinion on the propriety of building this road, it seems proper that a concise view of the general effects of internal improvements on commercial cities should be first considered. The elucidation of this point is necessarily the ground-work of the whole. Within the past ten years this subject has been most thoroughly examined, and I need not enter upon an enlarged argument. It will be sufficient to notice several prominent facts.

History is replete with the rise, progress, and fall of cities; changes of government, wisdom or imbecility of rulers, invasion by barbarians, and many items, constitute the causes. In later days we mark the rise of Venice; we see the lagoons, the fishers' islands start into a great city, commanding the commerce of the world. Genoa and Portugal rise as Venice falls, and the latter rules supreme. But her unwise policy soon yields to British influence, and for the paltry market for her mines she abandons her manufactures, and soon her commerce and greatness are numbered as things that were. But we need not follow the history of another continent for proofs; our own country, though young, is marked strongly with the same style. The town of Gloucester, in New Jersey, was located prior to Philadelphia, and carried on considerable trade for the times. Salem, Massachusetts, once a port to which New York was indebted for a large share of her India goods, now mourns her rotting wharves and silent streets, once busy with the hum of foreign trade. But the proof of the position is not confined to the actual fall of any town. But the fact that mutations have been and are taking place, demonstrates the point. Up to the close of the last war, Philadelphia was without a peer. Her commerce was in every sea; but peace, though welcomed by all, cast its blight upon the trade of this city, and thenceafter she had the competition of the bottoms of every nation.

The rapid settlement of the country then attracted the attention of wise men, and though Philadelphia (the first in all great works of improvement, whether for relieving the distressed, or extending the benefits of progressive mind) possessed a system of turnpikes, reaching every prominent point in the State, enriching her with the products of the State, and, as the tide of emigration moved west, securing the accruing trade, yet the construction of canals proved a successful rival to the heavy and lumbering Conestoga. We mark then the period of her declension by the year 1825, the opening of the New York and Erie Canal ; and by the same year we mark the life, the manhood of New York. The rapid improvement of the counties bordering this canal, soon poured immense floods of produce into the city of New York ; and as the western country has been improved, so their productions have turned to the lakes and to the empire city. Throw away the West, and no city on the coast could become the "empire." The many noble rivers by which the country east of the Alleghanies is drained, afford so many means of communicating with the seaboard, that in place of a few great cities, there would have been many smaller ones, each one at the debouchure of every river. But the vast West, with the Mississippi on the south and west, and the lakes on the north, is attainable by comparatively few routes, widely different in their character and merits. The Hudson river, breaking the Apalachian range, affords the best connection ; and the mind of De Witt Clinton was not long in foreseeing the advantages that would result from a connection of the lake and the Hudson river. Years prior to this, the legislature or assembly of Pennsylvania authorized a survey for a canal to connect the Delaware river with the lakes and the Ohio river ; and in 1769 the surveys were successfully accomplished. Many years after this, Washington, Jefferson, and other noble Virginians, desired the connection of the James river and the Ohio river. But it was left for New York, under the wise counsels of Clinton, to put into execution the fancies of others, and thus secure to New York the rich trade of the West.

In the history of Boston, during these passing years, but little can be noted. The changes in the policy of the country a few years after, induced the people of New England to turn their attention to manufacturing. Their barren lands, incompetent to sustain a large population, forced into their mills a full supply of labor, and New England ingenuity was thus permanently turned in that direction. The increasing commerce of New York furnished them a market for their goods, in turn consuming the produce of the West. The introduction of railroads was soon rendered subsidiary to the interests of Boston, and we soon see seven railroads entering that city, diverging with their branches to every attainable point of the compass.

Prior to 1841 the citizens of Boston perceived the influence of the canals of New York. They could see day by day the drayage of large amounts of goods and produce across their city, leaving but little profit ; and were impressed with the conviction, that could they secure a connection with the West, the produce might be brought direct to their city, and return merchandise sold. Acting upon this conviction, and with a subscription of one million of dollars, they commenced the Western Railroad ; the grand scheme of the day ; a scheme that but few thought little less than folly ; a scheme at which New York laughed and derided. But mark the change. From the day the Western Railroad was opened, new life

was imparted to Boston, while a heavy and lasting injury was inflicted upon the city of New York, and one consequence has been the declination in the real and personal estate of the city of New York, of over $1\frac{1}{2}$ per cent per year for four years, or a total reversion in the scale of advancement of $10\frac{1}{2}$ per cent per annum.

The influence of the Baltimore and Ohio Railroad over the prosperity of Baltimore, and of the railroads from Charleston, South Carolina, extending through South Carolina and Georgia, upon that city, might be appropriately referred to statistics to establish; but I think the above must be sufficient to prove the immense influence of internal improvements, connecting with the West, on the prosperity of every commercial city.

The fact of the successful rivalry of Boston over New York, proves that the best connections will not suffice to retain trade; and develops the interesting fact, that the convenient access to the manufacturing interest is the item turning the balance. Were the same amount of factories established around New York that are convenient to Boston, the Western Railroad would have been a dear whistle, a senseless project. The city of Boston, in place of being a mart, would have retained her position as an inferior town, interesting only from historical incidents.

Boston has expended about twenty millions of dollars in perfecting the various lines extending from her limits, and this is to reach every factory, every stream, every village within reach; and thus to concentrate the power or command the trade, and in effect to compensate for her limited space; and, as time is computed, to make the neighboring factories as near as they would be in a large and scattered city. There is great wisdom in this, but I think the lapse of a few years will prove that it will not answer. The introduction of steam-power must effect a revolution in the manufacturing interest. The capital invested in manufacturing is mostly held by residents of the cities, who are deeply interested in the prosperity of those cities; and inasmuch as they may be extended by an increase of the laboring class, the owners of property are benefited. The tendency of manufacturing is gregarious: it is so in England, and we see the tendency here. The advantages overbalance the disadvantages; and in this country the points of aggregation will be on the coast, where they can be protected in case of war. The use of water as a motive has hitherto prevented any striking instance of this fact, but where there is a large amount of water-power, we see it is all used; and Lowell, Nashua, Nashville, Pawtucket, are examples of this very tendency. The use of steam will obviate the previous difficulty, and full sway will now be given to this natural and reasonable course. The low waters of last fall have shaken the confidence of manufacturers, and many factories in the interior have been and are adding engines as an assistant power. There are many advantages connected with the use of steam, and I cannot do better than to refer to the able address of Mr. James, of Newburyport, delivered at Portsmouth, N. H., in the year 1845, on this subject.

Among the disadvantages connected with the use of water-power may be enumerated—

- 1st. The first cost of erection.
- 2d. The expense of transportation to market.
- 3d. The liability to the want of water.
- 4th. The necessity of investing a large amount of money in lands, erecting houses, making streets; thus diverting a large amount of capital

from its proper object, and requiring twice the amount of capital necessary to conduct the same amount of business.

5th. Economy in the use of steam.

The converse of these disadvantages constitutes some of the advantages proposed by the use of steam-power. The increasing number of factories in Providence, Newport, Bristol, and Newburyport, sustain the above position.

From the above statements we now deduce three conclusions—

1st. The immense influence of internal improvements, connecting with the West, on commercial cities.

2d. The power of a large and conveniently located manufacturing population to control the relative benefit of the above improvements on the prosperity of commercial cities.

3d. The superiority of steam as a motive power, and the decided tendency of the manufacturing interest to locate on the seaboard.

Having established these points, let us examine their bearing upon the city and county of Philadelphia, and ascertain her prospects to re-enter the field of commercial chivalry, and her chances of success.

First, then, her location in reference to a connection with the West. The State of Pennsylvania is indeed the Keystone of the Union ; the body of America. While one arm rests on the Atlantic, she lays the other on the Ohio, and her hand plays with the waters of the lake. Within her hills is stored the fuel of ages, and iron, the world's civilizer, to bind the continent, and insure the stability of this great government. Erie, her outlet on the lake ; Pittsburg, the head of the great eastern branch of the mighty valley ; and Philadelphia, not only the beautiful city of the plain, but destined to be the leading city of the North, a city worthy so great a State. In the present competition her rivals are east. The mass of productions of the forest, agriculture, and the mines, are derived from Ohio, Indiana, Illinois, Michigan, and the ascending trade of the Mississippi valley. Her chances may be calculated by her location relative to these States, New York and Boston being the rival cities. Taking the map and improvements as made, and the routes to be considered are—

1st. From Boston to Albany, thence by canal to Buffalo, and by Lake Erie and the western improvements to the prominent points in the above named States.

2d. From New York to Albany, thence as by first route.

3d. From New York to Piermont, from Piermont to Dunkirk, thence by lake, &c., as above.

4th. From Philadelphia to the same points west.

To tabulate these routes will give the following synopsis :—

RAILROAD ROUTES FROM THE SEABOARD TO THE INTERIOR.

	1.	2.	3.	4.	5.	6.	7.	8.	9.
From Philadelphia, via Pennsylvania Railroad, to Pittsburg, thence by the Pittsburg and Cleveland Railroad, and by the other railroads finished or projected.....	45	336	466	512	552	655	788	719	960
New York, via Hudson river, to Piermont, and the New York and Erie Railroad to Dunkirk, 476 miles, thence by Lake Erie to ports on said lake, thence by the railroads of Ohio, Indiana, and Illinois, above named.....	66	....	646	694	735	906	971	961	1,202

	1.	2.	3.	4.	5.	6.	7.	8.	9.
New York, via New York and Albany Railroad, to Albany, thence by railroad to Buffalo, 468 miles, thence as above.....	80	....	678	726	767	938	1,003	993	1,234
Boston, by Massachusetts and New York railroads, via Albany, to Buffalo, 521 miles, thence as above.....	85	....	731	779	820	991	1,056	1,046	1,287

NOTE.—Column 1 denotes the maximum grade in feet per mile; 2, miles to Pittsburgh, Pa.; 3, miles to Cleveland, O.; 4, miles to Sandusky, O.; 5, miles to Toledo, O.; 6, miles to Cincinnati, O.; 7, miles to Chicago, Ill.; 8, miles to Lafayette, Ind.; 9, miles to St. Louis, Mo.

This table proves the advantageous position of this city with reference to the western trade, and with reference to Boston and New York, but which I will refer to more particularly hereafter.

The consideration of the second conclusion need be but hasty. The point is, can manufacturing be profitably followed in or near this city? The large amount of money already invested is sufficient proof; but the full benefits of the position have not been fully realized. Until within a few years, the superiority of steam-power was unknown, though fuel was so plenty and so cheap; our manufacturers seeking water as a power. The advantages of this city are many, and may be considered as mainly consisting in—

1st. The low cost of material. Our connections with the South furnish cotton at a low rate, and increasing trade will tend to reduce the freight. From the West, a great supply of wool can be most readily obtained, and thus the raw material can be procured at a lower rate than at any other point.

2d. The cost of machinery must be less. The rapid improvements being made in the construction of machinery, cause large amounts of iron to be used; and when located here, machinists could of course purchase lower, with a better market to select from, and thus secure greater economy to the consumer.

3d. The cost of subsistence would be less. The vicinity of Philadelphia abounds in very rich lands, and her markets are justly celebrated for their variety and quality. In addition to this, her avenues with the West will enable her merchants to make better returns of sales to the producers, at the same time affording the article at a lower price.

4th. These superior avenues will enable her to secure the custom of the West, thus insuring a market for her goods and wares, while we consume their produce. This is an important point, and may be looked at more critically.

The third conclusion will cause a great increase of power in and around this city, for here the cost of power must be the least. If the manufacturers of New England can afford to pay freight on coal from here to their factories, and then prove that steam-power is as cheap as water-power, and preferable for other reasons, much more can steam be successfully used here; and then the tendency to the seaboard will have the full development. We have ample room, fine climate, and every inducement to the fulfilment of this natural tendency. Again, here will be the mart, and there will be a saving of transshipment. We are forced to expend no money to bring manufactured goods to this city. We have no Lowells, Nashuas, Merrimacks to build, and some twenty millions of dol-

ars to expend : but every inducement is offered here at the great mart ; and this money may be turned in its proper direction, aiding in the business of the city. I might still enlarge on these interesting points, and produce a calculation of the actual comparative expenses of building and conducting a factory here and in New England, and prove that an establishment here can make 6 per cent, while one of the same calibre in New England could but balance accounts. But I think my proofs of the capability of Philadelphia to fulfil the three requisitions which will secure the commercial ascendancy of every eastern city, are ample. Philadelphia is situated in precisely the same circumstances with Boston prior to building the Western Railroad. Her canals will not answer the purposes intended, and we see, year by year, her trade and commerce falling off. Goods manufactured here find their chief market in New York ; through New York our importations are mainly made, and, with the exception of a trifling spring business, our trade is confined to Pennsylvania. Like Boston we have aroused from our slumbers, shaken off our torpor, and are determined to make one great effort and replace ourselves among the great cities of the western hemisphere.

In the table above given, you observe, "Philadelphia, via the PENNSYLVANIA RAILROAD, to Pittsburg, 336 miles." 108 miles of railroad are built, extending from this city to Harrisburg, and the remaining 228 miles constitute the Western Railroad of Pennsylvania. This road will unlock to this city the treasures of the West, and bring into use every advantage above described.

As early as 1838 the Pennsylvania legislature authorized a survey to ascertain the practicability of crossing the mountains between Harrisburg and Pittsburg by railway, with no grade exceeding forty-five feet per mile. These surveys were continued during the years 1838, '39, '40, and '41, and resulted in the discovery of three main lines ; but the route, seemingly the most practicable, is designated the middle route, and extends from Harrisburg, crossing the Susquehanna river about four miles above that town, thence by the Juniata river to Petersburg by the little Juniata river and contiguous streams, crossing the summit within two miles of the Portage road, and thence in the vicinity of the present road, crossing the Conemaugh river near Blairsville, and across the country to the Monongahela at the mouth of Turtle creek, and thence by the river to Pittsburg.

The total elevation to be overcome is 2,380 feet, and the estimated cost for a road-way, graded for a double track and single track laid, and complete outfit, \$8,845,240. The first 120 miles, extending from Harrisburg, has no grade exceeding twenty-five feet per mile, and is of easy construction. In the passage of the mountain the heavy work is encountered. This peculiarity will be of great service in the conduction of the road, and will enable it to be more properly managed.

It is proposed, and may be the proper course at this time, to connect with the Portage Railroad, and complete the work over the mountain as the company may be able. After its completion it will be to the interest of the State to use the road over the mountain, the difficulty of the navigation being from Holidaysburg to Petersburg. This, then, is the road Philadelphia is about building ; and having considered the grounds of the prosperity of eastern cities and their peculiar adaptation to this city, I will endeavor to make a more extended application. In the first place, the western connections of this road.

With this road completed to Pittsburg, you find a road (which will be

built by the citizens of Pittsburg (in time) to connect with the Pennsylvania railway, extending from that city to Wellsville, at Beaver meeting the Erie canal, extending to the town of Erie on the lake of that name; the Pennsylvania Canal and the Cross-cut Canal; from Wellsville to Cleaveland a railroad is about starting; from a point on this road a short line will be built to Wooster, intersecting the Cincinnati, Columbus, and Cleaveland Railroad, and at Columbus and Massillon meeting the Portsmouth and Ohio Canal. The main line from Wooster to Springfield, Illinois, following the highland of Ohio, Indiana, and Illinois, meets the Mansfield and Sandusky Railroad at the former town; and, from Sandusky tapping the Michigan road from Detroit to St. Joseph, at Jackson, Michigan, crossing the Sandusky Railroad, extending from Cincinnati to Sandusky, at Kenton; the Cincinnati and Sandusky Canal, near Celina; intersecting at La Fayette the Wabash and Erie Canal, the La Fayette and Madison Railroad, and the La Fayette, Pontiac, Peru, and Galena Railroad; at Springfield meeting the road to St. Louis, to Peru and Quincy on the Mississippi river; and from some point on the Mississippi river in this vicinity becoming the road to Oregon, a road that must and will be built ere many years transpire. This is a general outline of these canal and railway connections. Already movements are taking place in the West to secure these lines, and the citizens of St. Louis have authorized surveys from that city to Indianapolis.

By reviewing this sketch, you will observe that we tap the lakes at Erie, Cleaveland, Sandusky, Toledo, Detroit, and Chicago; the Ohio river at Pittsburg, Wellsville, Cincinnati, Madison, and Evansville; and the Mississippi river at St. Louis, Quincy, Davenport, and Galena. A reference to the table of distances inserted above, will prove, that in relation to each point named, this city is more favorably located than New York or Boston.

2dly. The relative cost of transportation on the different routes. In the Railroad Journal of November 7th, I made a calculation of the cost of transportation on the routes above named, and from that article would extract the following:—

"I regret being unable to give as full an account of the charges between the different points as is desirable, but the items as given are sufficiently accurate to form a reliable basis of estimation. For the charges on the railroads, the rates of freight on the Western Railroad from Boston to Albany, 200 miles, have been adopted. For the canal charges, I am indebted to an extensive forwarding house in Albany, and the rates as given are the low summer and merely living rates. The charges fluctuate greatly on the canal and lakes, but the only safe basis is the rate at which the business will secure responsible shippers.

	Per 100 lbs.	Per Ton.
From Boston to Cleaveland, (via Wes. R'd, Erie Canal, and Lake Erie,)	94cts.	\$18 80
From New York to Cleaveland, (via canal and lakes,).....	66	13 20
“ “ “ (via New York and Erie Railroad and lake,).....	81	16 20
From Philadelphia to Cleaveland, (via railroad,).....	64	12 40
“ Boston to Toledo,.....	97	19 80
“ New York “ (canal and lake,).....	69	13 80
“ “ “ (railroad and lake,).....	81	16 20
“ Philadelphia to Toledo, (railroad,).....	76	15 20
“ Boston to Cincinnati, (via Toledo,).....	1 63	32 60
“ New York “ “ “.....	1 35	27 00
“ “ “ (via railroad and Toledo,).....	1 41	28 20
“ Philadelphia “ (via Pittsburg and river,).....	76	15 20

Here there is a comparison made on the most favorable side for the eastern roads and canals, and without allowing the full merits of the line from this city. Though these merits are not susceptible of accurate estimation, yet every reader will confess their great importance. I will note some of the preferences due to this line of road, and leave the valuation to be made by the reader.

1st. The grades. As above stated, the calculation for the cost of transportation is made on the basis of the charges of the Western Railroad. This road passes over two heavy summits, having an aggregate rise of about 5,000 feet, and with grades as high as eighty-five feet per mile, located through a difficult country, and exposed to interruption by snow. Yet this road, built at a cost of nearly eight millions of dollars, yields for 1846 an interest of $7\frac{1}{2}$ per cent. Their tariff of freight must of course be profitable. The New York and Erie Railroad passing the ridges and mountains at right angles, necessarily causes several summits, the depression of the Delaware, Susquehanna, and Alleghany rivers being very great. Their total amount of elevation cannot differ much from that of the Western road, and with grades of sixty-six feet per mile. The Pennsylvania road will have no grade exceeding forty-five feet per mile, and the country west is known to be favorable for railroads, and requires no grade exceeding this. Is there not a decided advantage thus given to this line? Every one, the least familiar with the working of roads, can appreciate this great superiority.

2dly. In transhipment. On the Boston route there must be two transshipments to lake ports, and three to any other point: on the canal route from New York, one transshipment; and on the railroad route from New York, two, and in many cases three. With the Pennsylvania route there need be no change. The car destined for Cincinnati, Cleveland, Toledo, or any other point, may be loaded in Philadelphia and left untouched until its arrival at the destined point. Every person engaged in western trade, and every western merchant, can appreciate this advantage, not only saving an additional expense, but also great damage to produce and merchandise.

3dly. The saving of time. The increasing valuation of time is exemplified in the very construction of railroads. We can no longer spend days and weeks in journeying to and fro. Even daylight is considered so precious that the travelling of the business community is principally performed during the night. The effect of this line of road will be to expedite travellers. A few hours will suffice to carry the traveller from the east to the west, and he be subject to no interruption from storms or want of conveyance. It will also be a saving of time in the transportation of produce and merchandise. The slow movement of the barge, and the various causes of detention on the canals and lakes, will be avoided. A few days will transport to our most western country any merchandise, and bring back their produce; and the certainty of receiving at a fixed time the produce or merchandise, enhances the value of this line.

4thly. The insurance on the lakes. This item cannot be estimated in a table, for the simple reason of the variable nature of merchandise: but it is an important item. The usual insurance on the lakes is $\frac{3}{4}$ per cent. In many cases this will equal the freight. The high rate of insurance proves the danger. Storms on Lake Erie are said to exceed those on the Atlantic, and the urgent calls on Congress to provide good harbors on

Lake Erie is additional proof. How strong the inducement to western merchants to use the line that will afford them superior advantages and save this risk. A great inconvenience connected with the dangers on the lakes is the uncertainty felt by the merchant. His purchases east are made with care and taste to suit his own market, and the receipt of this merchandise as purchased is of consequence to him. Will he not avail himself of that line free from risk, and affording the certainty of receiving his merchandise as purchased?

5th. Availability of the line at all seasons. Herein is a great desideratum. It is against the policy of Americans to remain locked up by ice one-half of the year. We have rendered time tributary to our benefit; we have made the electric fluid subsidiary to our wants, and can we stop our whole machinery from natural causes? Not so. There must be a continual communication throughout the United States. This desideratum is afforded in the proposed line of railroads. The present course of commerce runs thus:—the collection of large amounts of produce at the different shipping ports in the West during five months. On the opening of navigation in the spring, and prior to the closing in the fall, there is a rush, forcing every nerve and using every means to forward produce, each one being anxious to secure the first chance of the market, and to pour as much produce as possible into the market during the fall; the effect being to depress the markets below the actual value, and thus injuring the producer. Any rise in the markets east during the winter is not available to the western people, and the consequence is, an unhealthy rise in the eastern market, elevating the prices east and west when the canals open; a depression follows, and loss and ruin often ensues.

What a revolution in this ill-formed trade will the opening of a continuous railroad produce! It will be a governor to the commerce of the country, enabling the producers to forward their produce as prepared, to take every advantage of the market, prevent any great fluctuations, and make their purchases as they require, thus making all trade more regular in its movements.

In a financial view, it will be of great benefit; an inference from the foregoing remarks. The system of making advances to western millers and merchants, so extensively pursued in New York and other cities, is a very bad one; and the reverses of last spring furnish a profitable lesson. This will be reduced to proper bounds, and if the factor advances to the miller to purchase wheat, he can have the flour in market in a few days, and thus at no time be much in advance. And the fact that merchandise will not be purchased in such large amounts at one time, will tend to relieve the purchasers West and the merchants in eastern cities. The whole influence will thus be salutary.

The aid of the telegraph will be brought into requisition, and large amounts of flour and produce be sold through its medium. Sales of flour may be made in the West to-day, and promises of delivery in three or four days, thus bringing the western millers on nearly equal ground with those located near the seaboard.

6thly. In the present movements of western trade, the cities on the lakes become the depots, and to secure the trade this must be the course; but by observing the locations of the routes above indicated, this course of trade will be altered; and to obtain the trade, we are not forced to go to Cleveland, Sandusky, or any lake city, but every depot along the net-work

of railroads and canals become the points at which we aim. This line is the great Mississippi, and will have its branches reaching every point in the West. We then obtain our trade in the heart of the producing country, and thus save to the western people the expense of sending their produce to the shipping city, and receiving their merchandise therefrom, which amount of freight serves to lessen our rates and to add to the expenses of other lines. It is certain, then, that this line will secure the entire trade of the West for the fall, winter, and spring months, at least during the time the lakes and canals are locked up with ice. The balance of the year we would more than have equal chances. These are some of the advantages connected with this line.

The winter trade of the West now seeks New Orleans as a market, being completely debarred from the North. Take away the cotton and sugar trade of that city, and the balance is entirely derived from the up-country, and mostly received during the winter.

There are so many changes incident to this trade, and so many drawbacks to its successful prosecution, that produce will not be shipped there when other avenues are open. Here, then, we open the avenue, and secure, at the least calculation, a trade worth twenty millions of dollars. It is unnecessary to make any remarks in reference to passengers. The advantages in this case are so decided that there is no doubt that two-thirds of the whole travel will be secured to this line.

In writing of the effects of these lines of trade, I am led on almost against my own judgment in speaking of rival lines. To look ahead at the progress of the western country, conceive its population doubled in fifteen years, its vast resources constantly developing, the great increase of trade consequent, and it seems idle to write of rival lines. There is enough for all, and many more such lines. True, some peculiar locations will command certain trade, and with that impression have I written, to show the trade that will inevitably be secured to this city. That it will be a greater amount than any other point, I cannot doubt, but that other cities will in consequence be ruined cannot be believed.

If all my premises are correct, the conclusion is unassailable. And how strong the arguments thus adduced to the people of Philadelphia to enter at once upon the construction of a road offering so great inducements; the effect being to elevate the city, and thus enable her to enter the field a bold and successful competitor for commercial ascendancy.

Philadelphia is destined to be the coal and iron depot of our continent; the centre of the manufacturing system, and a vast warehouse for western trade. Capital will flow in from every quarter, and improvements extend to every portion of the State; and Pennsylvania, free from debt, will in truth be the Keystone of the Union, and be pointed to as an honor to the government, an honor to man, an honor to the world.

J. A. W.

ART. V.—THE SEA RESOURCES OF THE COAST :

AND THE WHALE AND SHORE FISHERIES OF NEW LONDON.

STERILE as the rocky coast of Connecticut may be, in comparison with the fertile valleys of the West, and scanty as may be the product gathered from the rugged surface of its soil, Connecticut contributes her full quota to the national coffers, and furnishes her full share of material for the national defences.

It has become so fashionable to disparage her stony shores, and to ridicule the meagre amount of her agricultural resources, that her people have really seemed disposed to let judgment go against them by default, and to submit in silence to all the flippancy that has been let off upon them, and upon the honest old pilgrim soil which gave them birth. They have entered no counter-plea, and manifested no desire to do so.

Content with their own lot, they heed very little the estimate that may be put upon it by others ; and being somewhat thick-skinned towards detractors, she has been quiet under their calumnies, and even ridicule has scarcely found itself effective in disturbing their sensibilities. Conscious, themselves, of a tolerable degree of comfort in the world, they have cared very little for what other people have had to say about it. Finding no great difficulty in maintaining their families, educating their children, and keeping their accounts square with their neighbors, it brings no special trouble to their minds that the land from which they gather the means of doing all this, will rarely yield them more than thirty bushels of corn to the acre, while their Indiana and Illinois friends can obtain two or three times as much from theirs, with perhaps one-half the labor. So long as they can keep their crops and their creditors upon tolerable terms with each other, it is matter of very little regret to them, that the former are not large enough to flatter them into factitious flourish, nor the latter numerous enough and exacting enough to tempt the debtor into repudiation. The Connecticut producer has less "chivalry," or, at any rate, it is rather less obtrusive, and abundantly less noisy, than that on the banks of the Santee and the Mississippi ; but perhaps, after all, it is nearly as nice in its honor, and quite as convenient in its "high-mindedness;" for it consists, mainly, in a rigid adherence to principle—the principle of performing what it promises.

His land may not be so rich as that of his Western and Southern brethren—it certainly is not—and he may not himself be as individually rich as the great planters and farmers of Carolina and Pennsylvania, and he certainly is not, so far as the *possession* of great apparent wealth is concerned ; but it will be our business to see whether the riches, as well as the personal comforts and individual independence of this people, are not fully equal in the aggregate.

The Yankee land is cold, bleak, and rocky ; at least, large portions of it are so, and not more than half as good as that of Ohio, or western New York, for growing wheat ; compared with that, it will rarely yield more than half a crop of potatoes, but it is good for something, nevertheless. It is no great thing for hemp or flax, but first-rate for building wharves upon ;—not particularly productive in corn, but capital for cod-fishing from, and excellent for shelter to whale ships. The soil is rich enough, at any

rate, for raising raw material for ships, and the hardiest sailors that ever floated upon salt water, for navigating them.

It so chanced, a short time since, that we were thrown among some statistics touching the business and resources of a small section of Connecticut, and that, too, the very poorest portion of the State, so far as soil is concerned. The Collection District of New London, embraces only that portion of the Sound coast which lies between the mouth of the Connecticut River and the Western shore of the Mystic, a distance of less than twenty miles, and though the land lying immediately on the water is for the most part tolerably good, the productive soil does not reach more than a mile from the Sound, on an average ; and back of that, for some distance into the interior, it is as poor and as unproductive as any part of New England—a considerable part of it too poor even to be cultivated—worth nothing but for wood, and for a scanty pasturage for sheep.

Now, let us see what this seemingly unpromising portion of poor old Connecticut really *is* worth to the owners and to the country.

Within that circumscribed district, there are owned, manned, and fitted out, 57 ships, 16 barks, 1 brig, 5 schooners, 1 sloop—total 80.*

These eighty vessels are engaged in the whale fishery, and cruise in every accessible quarter of the globe, and in some quarters which have proved *inaccessible* to all others ; for, in the language of Burke, their sails whiten every water, “from the tropics to each extremity of polar cold,” and it has not unfrequently occurred, that the bold and unflinching navigators of these ships have been found floundering among the mountain icebergs of the North and of the South, amidst which, even the daring enterprise of explorers, expressly fitted out for new discoveries, had become dismayed and turned back.

These vessels are manned by crews mostly made up of the hardy sons of the soil, and number, at present, a body of 2,295 men, many of them shareholders in the ships they sail in, and all of them interested in the voyages they make. Each man receives a *pro rata* proportion of the oil and bone taken on the cruise, and consequently has a direct incentive to the ample exercise of all his energies. The men engaged in a New Lon-

* The Collection District of Stonington, lying directly east of New London, and between that port and the State of Rhode Island, belonged, until within a few years, to New London. The length of coast, embraced in the new district, is less than nine miles ; and the following statistics exhibit the flourishing state of the foreign and home fisheries within it:—

Whaling ships at Stonington proper, 20 ; barks, 7 ; whaling ships at Mystic, 10 ; barks, 2 ; total, 39. The number of the crews manning these vessels, is 1,150.

The smacks over 20 tons, are, schooners, 4 ; sloops, 23 ; under 20 tons, 21 ; total, 48. One of these smacks is of 89.27 tons burden, another is 86 tons, another over 75, and there are several from 40 to 56 tons.

These vessels, like those of their class in the district of New London, are mostly manned on shares ; the crew taking three-fifths of the whole “catchings,” and the owners, the remaining two-fifths for the use of the smack.

It may as well be stated in this note, as in the body of the article, in which we overlooked the fact, that some of these small vessels, in both districts, generally go into southern latitudes during the winter, and return, in the spring, for the New England coast fishery. Some of them have even doubled Cape Horn, and cruised on the Chilian and Peruvian coasts, carrying their fish into Callao, and other South American ports for market. They have not, however, been very successful heretofore, in these enterprises. It is not at all uncommon to see a New London or Stonington smack, unloading her finny cargo, at Rio Janeiro, or Buenos Ayres.

don whaler, work hard and get rich slowly—but they get rich and bring riches into the country; and, what can be said of scarcely any other branch of nautical business, there is, in their case, a fair division of avails.

The officers share in proportion to the responsibilities of their grades, from master down to boat-steerer, and the men, proportionate to individual claim upon the common profits of the voyage—a claim, grounded upon the skill, experience, and bodily activity of each. Nothing could be more equitable than this apportionment, and nothing better calculated to secure the certainty of a profitable return to labor, so far as human exertion is capable of securing such a certainty.

The total return of these ships, in the different kinds of oil, and in the bone obtained from the whale, amounts to about \$32,000, upon each voyage, as nearly as the average can be made out from the data in our possession. These returns are made, in one, two, or three years, according to the quarter of the world in which they cruise, and to the success met with in finding and capturing the oleaginous monsters in whose pursuit the whaleman goes.

The vessels employed in the whaling business, from this port, are generally from 250 to 350 tons, though a portion of them are much larger; and there are at this time several ships in the "fleet," which were built for European packets, and engaged for a number of years in the New York, London, and Liverpool lines. The average tonnage, however, is about the same as that from Nantucket, New Bedford, and the other whaling ports of New England; but New London has cruising, at this time, the largest and the smallest whalemens in the world—the ship *Atlantic*, being 699 tons burden, while the schooner *Garland* is only 49 tons. The latter little craft, mere cockle-shell as she is, is breasting the billows off Derotation Island, in the Indian Ocean, as a tender to the ship *Charles Carroll*; her sturdy crew as confident in the staunchness of their vessel, and as little dreaming of danger, as if they were cruising in a line-of-battle-ship within sight of their own shore.

This very general view of the whaling statistics of the district, is sufficient to rescue the twenty miles of sterile coast from the charge of utter worthlessness, and to enable the people inhabiting it, to hold up their heads with some confidence among their countrymen, amidst the jeers, with which some of those countrymen so much delight in disparaging them. But,

Their resources reach beyond their whaling operations, or, to speak more accurately, their riches are not confined to the wealth acquired in distant seas, and remote quarters of far-off oceans. They find a mine of wealth, as it were, at their own doors, and are actually educating hundreds of hardy seamen for the country's service, within sight of the rocky promontories, whose shingly shores and shallow soil are deemed so valueless by the lords of prairie-land, and the notables of the "Ohio bottoms." Nor is this noble school for furnishing the commerce of the country with its best sailors, without its present profits while in operation. It is making comfortable, and even securing competency, if not actually making rich, the families of its pupils, at the same time that those pupils are hardening themselves into a body of men, so invaluable to their country, not only for its maritime prosperity in peace, but for its defence and its security in war. It is unnecessary to say, that we refer to the coast fishery, and to the immense comparative amount of interest connected with it.

The little city of New London, which forms the *nucleus* of the branch of the national industry and enterprise embraced within the narrow limits with which we have to do in this article, contains but about 8,000 inhabitants, and is looked upon as but a moderate sized village seaport, not very attractive in its aspect, and by no means likely to lead a stranger into any very high estimate of its wealth, but is, nevertheless, quietly and unobtrusively contributing to its own comfort and to the resources of the country, in a degree little known, and consequently little appreciated by the public.

The number of vessels now employed in the various kinds of fishery on the coast, from the Grand Banks, in the East, to Cape May, in the South, is no less than as follows :—*

Schooner-smacks, over 20 tons,.....	9
Sloop-smacks, "	46
Sloop-smacks, under 20 tons,.....	30
Total,.....	85

Many of these smacks are of sixty and seventy tons burden—some, we believe, reaching ninety. A beautiful schooner, just rigged, and now lying at the wharf, nearly ready for a cruise, is of about seventy tons—as beautiful in model, as sound and faithful in construction, and appointments of all sorts, and as firm in substantial finish, as any craft that ever encountered salt water. They are unquestionably the best and safest sea-boats in the world, and nothing that carries canvass can compete with them in going to windward; nor will they ever find competitors, till some sea-philosopher contrives a craft that can make her way with sails, alone, directly *into* the wind. So perfect is the working of these vessels, and such the daring and undaunted skill with which they are managed, that they are rarely ever lost—perilous as is the employment in which they are constantly engaged, and terrible as are the winter storms they are continually encountering. Indeed, the hardy and bold men who own and navigate them, are so confident of their qualities, and of their own capacity for conducting them with safety through every trial that may await their adventurous career, that, we believe, they generally act as their own insurers without calling upon incorporated offices to run any risk on their own account. They look, under Providence, to their own courage, and the strength of their own practised right hand, for all indemnity against danger.

These eighty-five vessels average something more than four hands each—some of the largest carrying seven or eight—making an aggregate of at least 400 men and boys, actually in constant employment on board; while it is estimating very moderately, to say, that the number connected with them on shore, and directly interested in the success of their labors, cannot be less than 1,500. This, of course, is exclusive of the numbers indirectly benefited by their business, more or less immediately. The ship-carpenters, the rope-makers, the riggers, and mechanics of almost

* It is proper to say, that this list does *not* include a ship and a schooner, which recently fitted from New London, but which are known to have been lost; and that it *does* include two ships, which, though fitted out lately as whalemens, are at present employed in the freighting business to Europe.

every class, the farmers, and, indeed, nearly every member of the community around them, are, in some measure, connected with their prosperity; and pitiless would be the condition of the great cities, but for the untiring enterprise and fearless self-devotion of the smackmen. How would it sit upon the stomachs of their fellow-citizens of Baltimore, Philadelphia, and New York, to go into market some morning, and be informed that the smackmen had given over their business, and that the haddock and the halibut, the lobsters, the blackfish, the paugies, the Hannah Hills, and every other sea luxury to which they had been accustomed, were to be looked for elsewhere?

Such an announcement would probably open their eyes, in some small degree—open them far enough, at least, to smooth down some of the wrinkles which so frequently disfigure their faces in endeavoring to look contempt upon the rough visages and coarsely-clad bodies of the Yankee skippers. Humble as may seem the calling of these rugged, and sometimes ragged, denizens of the reef and the rock, they constitute a class of men, more respectable among themselves, more useful to those around them, and more important to the community to which they belong, than forty times the number of showier popinjays who love to laugh at them!

Such are some of the men who make up the population of old Connecticut. Such is some of the material of national greatness, so looked down upon by the politicians and political economists of the country. Such are some of the *products* of the barren sea-beach, so often undervalued, so flippantly derided, and so rarely understood.

It is impossible, from the nature of the business, to arrive at any strict accuracy, or, perhaps, any very close approximation to it, in estimating the amount of clear profits annually earned by these New London smackmen. It probably reaches nearly \$100,000; and such a sum, added to the amount brought on shore by those engaged in fishing on a larger scale in the Atlantic, the Indian, and the Pacific Oceans, strikes us as placing this much despised section upon a footing of very tolerable equality, with the vaunted productiveness of regions enjoying a more favored fertility of soil. Nor have we deemed it necessary to take at all into view, another branch of maritime industry, in which the people of this district are engaged, though it is of itself of no inconsiderable value and importance. The coasting business, proper, is of very considerable extent, and the source of a very handsome profit. We have taken no pains to reach the amount of this business with anything like statistical exactitude, it being simply our purpose to look more particularly into the foreign and coast fisheries of the place; but still, the coasting trade between New London, and New York, and Albany, from the former to Philadelphia, Baltimore, Charleston, New Orleans, Texas, and even the ports on the Gulf of Mexico, is of no very contracted consequence, though certainly secondary to the greater and more engrossing interests on which we have principally dwelt. That the rocky region round about her, is worth *something* to New London, besides for affording shelter to her 'long-shore fishermen, and furnishing ground enough for *lying alongside of*, in fitting out whalers for the coasts of Japan and Madagascar, it were not out of place, perhaps, to say, that several of her vessels have, within a few years, been employed in transporting some thousands of tons of her surplus granite to Vera Cruz, which now presents the best portion of masonry in the castle of San Juan d'Ulloa, while others have carried cargoes to Ali Pasha, for the construction of for-

tifications at Alexandria and Grand Cairo. These latter specimens of traffic may possibly be considered more profitable than patriotic, and so we once took occasion to say to the proprietor of the quarry; but he seemed to look upon his patriotism as perfectly intact in the transaction. With regard to Mexico, he was quite sure that he was doing good service to his country; for he was making Santa Anna pay—and pretty roundly, too—for New London county rocks, which Uncle Sam's ships would go out some day and knock all to pieces, and thus render good for nothing to the Mexicans, when the yellow-faced rascals would be obliged to buy more of him; and thus, while the navy were battering their forts about their ears, he (the stone merchant) was draining them of their money. Upon some similar principle, he justified his dickering with the despot of Egypt.

However, New London derives her main importance from the wealth which she draws from the deep. What enriches her citizens impoverishes no one else. Her riches may properly enough be called an *invention*. The fisherman *finds* them amidst the sea, where no claimant can interpose a prior ownership, and all he brings ashore is original virgin gold, before unknown and unowned.

The little city is fast assuming an unmistakable aspect in this respect. She is becoming a new creation. For nearly two centuries she remained what she was when the pilgrims planted their staves upon her barren borders—a mere hamlet of humble dwellings, upon a bleak and rocky hillside. For fifty years, she continued stationary, as a “county town of 3,000 inhabitants”—varying, for all that time, as little in her census as she did in her habits; no more dreaming of the day when her noble harbor would shelter eighty of her own ships, than she did of rivalling her English namesake in the number of her churches and the splendor of her palaces. She even seemed to deem it undesirable to *improve*. She was perfectly satisfied with what she was, and looked askance upon every fresh attempt to make her either any bigger or any better.

But a great change has come over the spirit of her dreams. She has shaken off the lethargic slumber that was upon her, and if a few of her *aboriginal incubi* do not refuse to let go their hold, and some of her modern doctors do not insist on administering too much opium, she will remain awake till she takes her place among the proudest of her sister communities.

No port upon the coast of the North American continent furnishes superior advantages to that of New London for foreign and domestic navigation; and poor as may be the soil immediately surrounding the town, (and poor enough it certainly is,) there are few localities in the country offering greater facilities for a flourishing and prosperous business, and the building up of a first-class town.

C. F. D.

Art. VI.—THE UNION OF THE ATLANTIC AND PACIFIC OCEANS.

IN order fully to avail ourselves of all the sources of trade which have been thrown open to us by our conquests on the western coast of America, it is indispensable that a canal or railroad should be constructed across the Isthmus of Darien.

So much has been written upon the subject since Baron Humboldt first

drew public attention to its feasibility, and the advantages that would result from its accomplishment, that we are astonished at the delay of selecting the route, and putting into execution a project of such vast consequence.

In the settlement of California alone, the advantages of such communication cannot be over-estimated. Our rapidly increasing commercial relations with the East Indies, China, Australia, the Feejee and Polynesian Islands, and South America, call loudly for its commencement; to say nothing of our immense whaling interest in the Pacific. We have reason to fear that one of the two great European States which have so long had the work in contemplation, will subject us to the mortification of receiving at its hands, the facilities which are so necessary for the advancement of our political as well as commercial interests.

Boasting, as well we may, of a canal such as the world never saw, commenced and completed by a single State, can we doubt the ability of the United States to accomplish a work of far less magnitude, although of much greater importance? Will not the attention of Congress be attracted to it, and measures at once adopted for the furtherance of this great object?

For the following information we are partly indebted to a highly distinguished functionary of a foreign power, long a resident of Central America, whose anxiety is, that when the enterprise shall be taken in hand—and it certainly must be, at no distant day,—its success may be secured by a judicious selection of locality.

He considers that a line from the bight of the Mandingo Bay, (in the country of the San Blas Indians,) to the Pacific coast, near Panama, is the best route. The isthmus here is much narrower than at any other points, being only eight leagues across. Besides, the mountains of the central range, which elsewhere offer a serious barrier, have here gradually dwindled, so as to give striking evidence to those who view them from the bay, that this is the right point for the transition to be made. It is common for the Indians to transport their canoes from one ocean to the other, by taking them up the River Mandingo, (that has a long course from the southward,) hauling them over a narrow neck of land, and then descending the course of another stream, into the Pacific, not far to the eastward of Panama.

This locality possesses the advantage over all other, of a salubrious climate; and while Chagres and Porto Bello are, from miasma and constant rains, rendered the most deadly ports to which a foreigner can resort, the climate around the Mandingo is perfectly healthy at all seasons. This spacious bay, with its deep channels, among innumerable islands, possesses unrivalled accommodations for the navies of the whole world, in anchorage or in mooring to the islands. Even Porto Bello, whose name indicates the character of its haven, must yield the palm to Mandingo.

The coast of San Blas is said to be more dry and salubrious than even the shores of the Musquitia, which have been considered healthy to a proverb; and its soil, even under the wretched cultivation of a demi-savage population, teems with more produce than the Indians can consume. The surplus, beyond what is required for the shipping, is used for fattening swine and poultry, which are reserved for supplying the trading vessels—it being considered, by the Indians, disgraceful for them to consume these domestic animals, while the forests yield so abundantly of wild ones, and the bays and rivers an ample supply of fish and turtle.

Of the other contemplated routes, that between the river Guasacualer, which flows into the Gulf of Mexico, and the Bay of Tehuautepic, in the Pacific, is the least likely to be adopted. Another is that ascending the river and lake of St. John de Nicaragua on the Mosquitian shore, and descending from the latter by the course of a small stream, into the Gulf of Papagayo; and a third route, by connecting the source of the river Atrato, which flows into the Gulf of Darien, with the river St. John, that flows into the Pacific. This connection was effected the latter part of the last century, and the use of it forbidden on pain of death, through jealous fears of the Spanish government. Of late these lines have been abandoned in favor of a fourth, viz. : that of Porto Bello to Panama. The soil or rather climate of Porto Bello is so unpropitious to agriculture, that the scanty and squalid population find it difficult to procure the means of subsistence.

Upon examining two Spanish maps, published at Madrid in 1809 and 1817, one gives the distance across the isthmus, from Mandingo Bay, as about five leagues, and the other eight; while the distance at Porto Bello is given as upwards of fourteen.

It is in comparison with this route from Porto Bello particularly that we would draw the attention of the public to that of the Mandingo; the testimony of all the traders along the coast, of many years experience, has been given in favor of the latter. The superiority of this locality admitted, and there remains nothing to prevent its being put in competition with the others, but the well-founded report that the San Blas Indians will not permit such an enterprise to be commenced in their territory—a territory which the Spanish monarch and his republican successors have claimed as theirs, prescribing vexatious restrictions on the trade of the coast. As for the acquiescence of the Republic of New Grenada, which claims sovereignty over the San Blas country on a plea of heritage, though they never had possession, there is little doubt it could be obtained by purchase.

The San Blas Indians are naturally jealous of what is likely to endanger their independence—a guarantee of which must be given before any route for trade, through their country, will be permitted. If the business is rightly set about, there is no doubt that the repugnance of these Indians can be overcome, and the use of their country permitted for the construction of a work which cannot fail greatly to enhance its value.

The British government has long extended its protection over the Mosquitia Indians, in whose territory they have a Consul-General; and as the character of those of San Blas is quite as proverbial for industry, courage, and integrity, a like attention from our government might secure to us commercial advantages of great value. Their only trade at present is with Jamaica, and such is the patriarchal character of their government, that it has preserved them hitherto from the effects of that contact which has ruined most of the North American tribes. A course of trade through their country might introduce intemperance among them, therefore it would be necessary for us to establish such regulations as have been long in use on our Indian frontier, to preserve the red man from the demoralization which has too often ensued from his contact with the white.

Our enterprising countryman, William Wheelwright, Esq., (who has been many years engaged in establishing steam-packet routes about the Pacific,) in a paper, read before the Royal Geographical Society of Great Britain, states that Chagres is the only river of any magnitude, to be found between the Gulf of Darien and the river San Juan de Nicaragua,

which, after receiving several confluent streams, discharges its waters into the Atlantic ocean; while the rivers Chavera and Grande, immediately opposite, and falling into the Pacific, have their sources interlocked with those of the Chagres and its tributaries. These leading features seem to afford almost conclusive evidence that the level here is most complete, and that the natural advantages for connecting the two oceans, are much greater than at any other part of the isthmus. Mr. Lloyd's report and maps are the only scientific evidences we can obtain in relation to this matter. It does not appear that he traversed the line he laid down, but he doubtless observed it from the elevations which he ascended. His levels were undertaken with the view of ascertaining the comparative height of the two oceans. His statements, containing his observations and calculations, are deposited among the archives of the Royal Society.

In tracing the route between the rivers Chagres and Panama or Chavera, it is necessary that we commence by examining the bar of Chagres and the adjacent coast. Mr. Lloyd proposed that a canal should connect this river and Lemon Bay, and thus avoid the bar. It is certainly capable of being made an excellent outlet. A nearly level line exists in this part of the isthmus, and there is no height of consequence to be overcome, in effecting a communication here, between the two oceans, either by a railroad or canal. Before so vast an undertaking as the opening of a great ship-canal can be commenced, it is necessary that a road be made as near the level line as possible, both with a view to ulterior labors, which such a road would greatly facilitate, and for the immediate establishment of an intercourse between the two oceans.

The canal must be sufficiently wide for ships of the largest size to pass each other freely in its channel. It must not be cramped with questions of expense, but laid out on a scale commensurate with its importance, and the age in which it is effected.

If we are not deceived, the level is so complete that it would only be necessary to have locks at either end, while its total length would not exceed thirty miles. The Chagres could be made its feeder, but the elevation of the Pacific ($13\frac{1}{2}$ feet) above the Atlantic, would probably render the canal independent of any tributary streams.

No really scientific research has as yet been made towards the realization of the object in view—an object which, when attained, will produce some of the most extraordinary results that the combined intelligence, wisdom, science, and energy of man are capable of effecting.

Art. VII.—LAW OF DEBTOR AND CREDITOR IN LOUISIANA.

LOUISIANA LAW ON THE SUBJECT OF "RESPITE."

THE articles in your valuable Magazine upon the "Law of Debtor and Creditor in Louisiana" have failed to call the attention of your readers to a great and important peculiarity of the civil code affecting the enforcement of civil obligations, as vitally important to the interests of the commercial public as those which have been already considered; I allude to the subject of RESPITE, a branch of Louisiana law intimately affecting many of the mercantile relations between this city and New York, and one which is probably quite unknown to the greater part of your readers.

Respite is defined by the Louisiana Code, art. 3,051, to be "an act by which a debtor, who is unable to satisfy his debts at the moment, transacts with his creditors, and obtains from them time or delay for the payment of the sums which he owes to them."

There is a further definition of *voluntary* and *forced* respite. It is voluntary, when all the creditors consent to the proposal which the debtor makes to pay in a limited time the whole or a part of his debt. It is forced, when a part of the creditors refuse to accept the debtor's proposal, and when the debtor is obliged to compel them by judicial authority to consent to what the others have determined in the cases directed by law. The voluntary respite needs no comment whatsoever. The stipulations which all the creditors choose to make with their debtor, can of course do mischief to no one; they may act together and unanimously in this or any other like contract as to them may seem good, but it is when the acts of two creditors may control the interests and rights of a third creditor, that the subject becomes one of serious importance, and the forced respite is a proceeding touching not only the parties who agree but those also who do not agree to its terms. "It takes place," says the code, "when the creditors do not all agree, for then the opinion of a majority in number and in amount prevails, and the judge shall approve such opinion, and it shall be binding on the other creditors who did not agree to it." Thus, for instance, if a merchant in New York entrusts to a merchant in New Orleans goods to the amount of one thousand dollars, taking a note payable at the latter place, say in one year, and the New Orleans merchant has two other creditors in this city, to each of whom he owes five hundred and one dollars, these two creditors, forming a majority in number and amount, may elect, under certain forms hereafter to be mentioned, to allow to the debtor three years to pay the two thousand and two dollars which he owes; and the New York creditor, although he may wholly dissent from such a disposition of his debt, must quietly submit.

We will pursue the rules of this law, as laid down in the code, and afterwards make some general remarks as to the extent to which they have been carried by adjudicated cases.

In order that the respite may take place, it is necessary—

1. That the debtor should deposit in the office of the clerk of the court of his domicile, to whom he presents his petition for calling his creditors, a true and exact schedule, sworn to by him, of all his movable and immovable property, as well as of his debts.

2. That a meeting of the creditors of such debtor, domiciliated in the State, shall be called on a certain day at the office of a notary public, by order of the judge; at which meeting the creditors shall be summoned to attend by process issued from the court, if the creditors live within the parish where the meeting shall take place, or by letters addressed to them by the notary, if they are not residing in the parish.

3. That the creditors be ordered to attend in ten days, if they are all living in the parish of the judge who gives the order; and in thirty days, if there are some of them residing out of the parish.

4. That this meeting, as well as its object, be advertised in English and in French, by papers posted up in the usual places; and also by three publications in English and French in the newspapers, if any be printed within the extent of the jurisdiction of the judge who grants the order.

5. That the creditors explain exactly the amount of the sums which

they claim, and make oath before the notary holding the meeting, that they are justly and lawfully due.

The creditors who do not make this oath, shall not have the right of voting, and their credits shall not be counted among those by which it is to be determined whether the respite is granted or not.

Absent creditors, and who are not domiciliated in the State, are not, in any case, summoned to the meeting. They are to be represented by an attorney, whom it is the duty of the judge to appoint for them.

The duties of that attorney are confined to establishing, as far as possible, the debts of the absentees, and to seeing that the proceedings are conducted legally; he cannot grant anything in the name of the persons whom he represents.

Thus it is seen that the first notice which a New York creditor may receive of the fact that his debtor in New Orleans is moving for an extension of time for the payment of his debts, is from a notary's letter; and such notice makes him, whether he will or no, a party to the proceedings.

The property of the debtor is not hypothecated, by reason of the respite, for the payment of the mass of the debts, unless the respite has been granted on the express condition that this hypothecation shall exist.

But the creditors who are obliged to abide by the will of the majority, may require that the debtor shall furnish security, that the property of which he is left in possession shall not be alienated; or, in case it is, that the money arising from the sale shall be employed in paying the debts existing at the time of the respite.

The following classes of persons cannot be compelled to enter into any contract of respite:—

Privileged creditors, of what nature soever their privileges may be, and creditors who have a special mortgage by public act.

Minors, for the balance of account of their tutorship or curatorship.

Wives for their dotal rights, or for that of reclaiming their property.

Therefore, the privileged creditors, and those who have a special mortgage as aforesaid, cannot be deprived by any respite, though agreed to by three-fourths of the creditors in number and in amount, of the right of seizing the property on which they have a privilege; but if such property do not prove sufficient to satisfy their debt, they shall be restrained from acting for the surplus, either against the person of the debtor, or against those of his effects on which they have no privilege, except after the expiration of the term granted by the respite.

But creditors having a general mortgage are bound by the respite, in the same manner as ordinary creditors.

The time allowed to a debtor in a forced respite, cannot exceed three years; and if the creditors of the three-fourths in number and in amount, have granted to him more time, the creditors who are opposed to the respite, may cause this delay to be reduced to the legal time, saving to the debtor the right, when it shall be expired, to call again these creditors in order to obtain a new delay, which, in this last case, shall be granted only if all these creditors unanimously consent to it.

Any one who has claimed the benefit of the cession of goods, cannot afterwards pray for a mere respite.

When the creditors refuse a respite, the cession of property ensues; and the proceedings continue, as if the cession had been offered in the first instance.

Until the year 1843, it was the law in Louisiana that no respite could be granted, unless three-fourths of the creditors in number and amount agreed to it. In that year a statute was passed reviving the State insolvent laws, which had been in force prior to the national bankrupt act, and at the end of this statute there is a clause providing that the article 3,053 of the civil code be so amended as to read, "majority instead of three-fourths." This is the article (3,053) regulating respite; no reference is made to the subject matter in the statute of 1843, and it might not be hazardous to declare that some of the members of the legislature were not at the time aware of the important alterations they were making.

But, says the New York lawyer, is not this, your law of *respite*, virtually an insolvent law? How can it affect the New York creditor, who, refusing to be bound by its rules, seeks to enforce a judgment in the Circuit Court of the United States? Would not that court decide respite to be unconstitutional, as impairing obligations, and as having no weight or binding effect upon those out of the State? These questions have been touched upon by the United States' Supreme Court in 10 *Peters*, 283, *M. B. Haydell, plaintiff in error, vs. François Girod*; and in 7 *Peters*, 413, *Breedlove and Robeson vs. Nicolet and Sigg*; but they have not been decided. The points were made, but the court found it easy to decide the cases upon other grounds. Our State courts have examined these questions, and given their construction, that the laws relative to respite are not insolvent laws.—3 *Robinson's Reports*, 407, *Anthony Rasch vs. His creditors*. The debt sued for in this case was payable in Louisiana, but contracted in Mississippi, and the opponent was a resident of the last named State. The petitioner resided in New Orleans. The court in its judgment refers to the opinion of Pothier upon the definition of respite, who says it is to be considered as "a question of equity, as it is not just that the rigor of some creditors should prejudice the interest of all." "Here," continues the court, "the petitioner seeks no discharge from his obligations, nor does he wish to impair their validity. He only says, I cannot pay you now without ruin to myself and injury to you and my other creditors, but give me time and all will be paid. We do not see that the granting so reasonable a demand is unconstitutional."

The Supreme Court of the United States would probably construe the laws of this State as our Supreme Court has construed them, though the door is a wide one to immense frauds. The one creditor may be compelled to wait three years, *without interest*, at the will of two creditors in collusion with the debtor. If the creditor objects to the law and seeks to set it aside, he is told that the rule is of the *form* only, and touches not the construction of his contract; or touches only to retard its payment, not to impair its obligation. It was the rule when he took the obligation, and, in matters regarding the enforcement of it, he is to abide by the terms of such rule. It may be, that the debtor in New Orleans owes ten thousand dollars to the New York merchant who has sold him merchandise, and owes ten thousand and one dollars to his father and brother; they, members of his family, of course agree to the respite, and the New York merchant has only to regret that he had not read something of Louisiana law before he entrusted his means to such unfortunate dispositions.

In some cases doubtless the operation of the law would be just and excellent. The crops of the planter, at the moment of harvest-home, are swept by the *ouragon* or the *crevasse*, and he finds himself on the instant,

though abundantly solvent, deprived of the power of meeting his present engagements. He calls his creditors together, lays the situation of his business affairs all open, a majority agree to grant a respite, and he is saved from the ruin which an immediate judgment and execution would bring upon him. The merchant, too, finds his present means crippled by the loss of his richest ship, and the refusal of an insurance office to pay without a suit: he may bless the equity of that law which prevents the rigorous creditor from driving him into bankruptcy.

MERCANTILE LAW CASES.

* [We are indebted to C. Bryan, Esq., of Akron, Ohio, for the following decisions in the Courts of that State, on points important to mercantile men.]

LETTER OF CREDIT.

When a letter of credit is addressed to a particular firm, no one else can rely on it as a guaranty.

The vender of a bill of goods, upon the faith of a letter of credit, must give notice at once to the guarantor, or he will not be liable.*

BILLS OF EXCHANGE.

The holder of a bill of exchange, drawn by a person living in one State, upon a citizen of another State, is relieved by the statute of Ohio from the necessity of procuring a notarial protest, except for the purpose of recovering the statutory damages.†

Such bills are so far foreign bills under our statute, that the notarial protest is received as evidence of the facts stated in it. The holder may treat them as foreign, by having them regularly protested,—which entitles him to 6 per cent damages, over and above principal and interest; or as inland, and make his proof of demand and notice.‡

A promissory note, payable to a person or bearer, is negotiable by delivery, without endorsement. But a sealed bill or note in the same form, is negotiable only by endorsement.§

The mere endorsement upon a note, of a stranger's name in blank, is *prima facie* evidence of guaranty.||

To charge such a person as *maker*, there must be proof that his endorsement was made at the time of execution by the other party; or, if afterwards, that it was in pursuance of an agreement or intention that he should become responsible from the date of the execution. Such agreement or intention may be proved by parol, and the rule is the same whether the instrument be negotiable or not.

COMMON CARRIERS.

- Proprietors of stage coaches are common carriers, and their liabilities cannot be limited by actual notice to a traveller that his baggage is at his own risk.

A watch is part of a traveller's baggage, and his trunk is a proper place to carry it in. Whatever forms the necessary appendages of a traveller, may be legitimately considered as baggage, and placed in his trunk for conveyance. However valuable an article of baggage may be, the owner is not bound to disclose such peculiar value to the carrier, unless inquiry be made.¶

* Taylor et al. vs. Wetmores, 10 Ohio, 490. § 14 Ohio, 542.

† 10 Ohio, 496.

‡ 10 Ohio, 180, Case vs. Heffner.

§ 13 Ohio, 239.

¶ 10 Ohio, 145, Jones vs. Voorhees.

COMMERCIAL COURT, MEMPHIS, TENN.—COMMERCIAL GUARANTEES.

A case of some interest to the mercantile community, was recently (December, 1846,) tried in the Commercial Court, at Memphis, Tennessee. The questions raised were upon the doctrines of commercial guarantees. A house at New Orleans shipped to this place goods for a merchant formerly in business here. The goods upon their arrival were detained by order of the sellers, until the purchaser should obtain a friend to guarantee payment of them. The guaranty was procured in writing. Its terms were substantially—"We understand Mr. H. J. proposes to do some business with you in the way of groceries, &c. We will be responsible with him for any contract he may make with you of this kind"—and it was addressed to the sellers. Testimony was given unnecessary here to detail.

The questions chiefly discussed were, whether notice of the acceptance of the guaranty was given to the guarantor—whether such notice was necessary to fix his liability—and whether it was necessary before seeing the guarantor, to give him notice of the default of the principal debtor to pay.

For the plaintiff it was insisted—that this was an absolute guarantee, not a mere proposal or overture to become guarantor—that notice of acceptance is only necessary in the case of a proposal or overture, not in the case of an absolute undertaking—that where the proposition or requisition of guaranty proceeds from the creditor to the guarantor, and thereupon the guaranty is given, notice of its acceptance is not necessary—that the omission of the creditor to give the guarantor notice of the default of the principal debtor to pay, is material only where such omission works an injury to the guarantor, and is not a pre-requisite to the right of action by the creditor against the guarantor. To sustain these positions of the plaintiff, were cited numerous British authorities and several recent decisions in the State of New York.

For the defendant it was argued—that there was no proof of notice given to the guarantor, either of the acceptance of the guaranty or of the default of the principal debtor to pay—that in regard to the necessity of notice, the distinction taken for the plaintiff between absolute guarantees and overtures, was unsound—that in all cases of guarantees of debts to be subsequently contracted, notice of the acceptance of the guaranty must be given to the guarantor in reasonable time, otherwise he will not be fixed with liability—and that notice of the principal debtor's default to pay, must be given to the guarantor, as a pre-requisite to a right of action against him.

Several cases in the Supreme Court of the Union were cited on the part of the defendant, and it seemed to be agreed, that these cases hold in regard to guarantees of debts to be subsequently created, that notice to the guarantor of the acceptance of his guaranty, is indispensable to fix his liability.

Verdict went for the plaintiff, and mainly, it seemed, upon the ground that where the proposition for the guaranty proceeds from the creditor to the guaranty, therefore he gives the guaranty; notice of its acceptance from the creditor to the guarantor is unnecessary. Certainly it is prudent in the creditor, in all cases of guaranty, to give notice in reasonable time to the guarantor of its acceptance and of the extent to which it is acted on, and of the default of the principal debtor to pay.

H. G. Smith for the plaintiffs, Blume and Trezevant for the defendant.

FREIGHT—DELIVERY OF MERCHANDISE.

In the Fourth District Court, (New Orleans,) Judge Strawbridge recently decided, (January, 1847,) in the case of *Andrews & Dewey vs. Troisgros & Lampre*, which was an action brought by the plaintiffs for the recovery of freight upon certain goods shipped from Havre, and consigned to the defendants—that a delivery of goods upon the levee, with notice to the consignee, was a sufficient delivery; and from the time of such discharge by the ship, the goods were at the risk of the consignee. Judgment accordingly.—Counsel for plaintiffs, Samuel C. Reed, Jr., Esq.; W. S. Upton, Esq., for the defence.

COMMERCIAL CHRONICLE AND REVIEW.

FEATURES OF COMMERCIAL AFFAIRS SINCE OUR LAST NUMBER—INFLUENCE OF RAILROAD SPECULATIONS IN ENGLAND—CONSUMPTION OF FOOD—BANK OF ENGLAND—BANK OF FRANCE—CONDITION OF IRELAND—FOOD IMPORTED INTO ENGLAND FOR LAST THREE YEARS—EXPORTS OF BRITISH MANUFACTURES FOR LAST THREE YEARS—STATE OF COTTON TRADE OF GREAT BRITAIN FOR FIVE YEARS—BRITISH EXPORT OF CALICOES, PRINTS, AND YARN, FOR FIVE YEARS—THE COTTON CROP—BULLION IN THE BANK OF ENGLAND—COMMERCIAL PROSPERITY OF THE UNITED STATES—INFLUENCE OF THE WAR ON FINANCIAL AFFAIRS—AFFAIRS OF THE UNITED STATES TREASURY—LOANS—IMPORT OF SPECIE—POPULARITY OF THE WAREHOUSING SYSTEM OF THE UNITED STATES—FORMS ADOPTED, ETC., ETC.

FINANCIAL and commercial affairs, since the date of our last, have evinced, in a more marked degree, the features which had been prominent for some previous months. Events in Europe are approaching a crisis, fraught with the most important consequences. In former numbers we have alluded to the great influence which the railroad mania of past years has exercised upon the condition of the people, and the results that influence has produced in extending employment, and enhancing the means of those whose share of the comforts and necessities of life has hitherto been small. The modification of the English taxes, in 1842, and subsequently, was designed, according to the avowal of the government, to throw the burden of taxation upon property, and to relieve labor, by cheapening the prices of the articles it consumes, as food and other necessities. This object has apparently been effected in England, as the large imports of foreign articles of food, besides grain, would show. Coming in aid of this, has been the large railroad expenditures, not only in Great Britain, but throughout Europe. The railroads, by their facility of intercourse, as well as through the direct payments made on their account, by governments and capitalists, to the laborers, have greatly improved the condition of the lower classes, and powerfully stimulated the consumption of food. In ordinary times, the effect of these measures would naturally be displayed in an increased demand for, and an advance in the prices of, food. It so happens, however, that simultaneous with this increased consumption, the crops of some of the coarser grains of the western states of Europe have been deficient, and in Ireland, a most awful visitation has overtaken the people, through the failure of the potato crop, on which millions of the wretched inhabitants depend alone for subsistence. The general effect of these circumstances has been, to compel very large purchases of food from eastern Europe and from America, and consequently, as is always the case in an unusual business, to disturb that financial repose which for so many years has been manifest, by causing important currents of the precious metals to set out of the customary channels for their employment. These events naturally would cause disquiet, but are aided by the enormous speculation in railroad shares. In the early fall a revulsion took place, which caused a great demand for money, and a rise in the rate of interest, in the cities of the north of Europe. In our January number we quoted the rates of interest on the continent, remarking that discrepancies so great could not continue long. As, for instance, when money is worth 5 to 6 per cent in Amsterdam and Antwerp, the Bank of France could not continue to discount at 4 per cent, without losing its specie; be-

cause it afforded a profit of 1 to 1½ per cent to German bankers to borrow money in Paris and reloan it in those cities; nevertheless the Bank continued to discount at that rate, until the low state of its bullion admonished it to raise the rate to 5 per cent—which was done in January. This would check the demand for re-discounts, but would not affect the export of silver for corn, the extent of which it is difficult to determine. The Count Darne estimated that the wants of France would be 44 days consumption, or 10,000,000 hectolitres, equal to 28,000,000 bushels, and worth \$45,000,000. Of this, one-half was supposed to have been purchased, and consequently the remaining demand for corn would be at least \$20,000,000. In this state of affairs, the whole of the bullion in the Bank of France would be absorbed. The amount held by it had fallen from 200,000,000 francs, in October, to 60,000,000 in January, when it obtained 20,000,000, in silver, from the Bank of England. If the estimates of the wants of France are correct, this whole sum will by no means suffice for the purchase of corn. Nevertheless the king, in his speech, stated that the public works would be continued by the government, an announcement that in some degree reassured the markets. In England, great fears of a revulsion were entertained, because of the difficulties in Ireland, and because of the wants of the continent, and attempts were made to run a parallel between the state of affairs now and that of the commencement of 1839. Independent of Ireland, the state of English affairs was never more sound. Its large imports of the necessaries of life grow out of the prosperity of the people, and do not arise from their distress, as in 1839. In January, 1839, the price of wheat in England was 79s. The highest point it has touched this year is 66s. 10d., or 17 per cent lower than in 1839. The consumption of foreign breadstuffs, in 1846, has not been greater than that of other necessaries. The quantity of food imported for eleven months, ending Dec. 5, has been as follows:

FOOD IMPORTED INTO ENGLAND, FOR CONSUMPTION, IN ELEVEN MONTHS.

	1844.	1845.	1846.
Live animals,.....No.	7,773	28,685	122,458
Bacon,.....cwt.	29	49	1,691
Beef, salt,.....	101,238	73,249	161,759
Butter,.....	169,096	225,903	230,623
Cheese,.....	194,560	241,130	288,623
Hams,.....	3,461	2,926	7,857
Pork, salt,.....	25,755	34,807	46,934
Rice,.....	314,466	289,767	309,622
Raisins,.....	173,356	181,701	215,819
Sugar,.....	3,871,081	4,637,441	4,887,527
Molasses,.....	569,359	587,899	542,010
Total,.....	5,442,701	6,274,822	6,692,465
Cocoon,.....lbs.	2,438,373	2,401,587	2,735,565
Coffee,.....	28,964,277	31,789,128	33,680,812
Pepper,.....	2,807,639	2,972,416	3,001,945
Ten,.....	38,291,073	40,956,448	43,408,729
Tobacco,.....	22,427,140	23,877,127	24,502,321
Total lbs.....	94,928,502	101,896,706	107,329,372
Grain,.....bushels.	18,792,448	8,842,736	31,075,888
Flour,.....bbls.	387,115	327,546	1,899,667
Bullion in bank, end of each year,	£14,828,416	£13,325,886	£14,951,550

This is an extraordinary result. The consumption of all these articles has increased prodigiously, and with that increase the amount of bullion in the Bank, large as it was, continued to swell in volume. It is observable that those articles which are luxuries were consumed in a greater degree than even necessary food. The exports of manufactures, in the same period, have been as follows, according to the declared value at the place of export :—

	1844.	1845.	1846.
Cotton goods,.....	£17,450,264	£17,673,469	£16,285,652
“ yarn,.....	6,680,329	6,614,854	7,512,257
Hardware,.....	1,996,031	1,978,014	2,003,597
Iron and Steel,.....	3,031,080	3,248,415	3,936,207
Linen goods,.....	2,790,274	2,741,065	2,561,234
Woollen,.....	7,687,160	7,099,676	5,851,253
Other,.....	7,647,205	10,095,532	8,481,888
Total,.....	£47,312,343	£49,451,025	£47,632,088

These are the export values, and with this diminished export and enhanced import, exchanges were maintained to the close of the year, so as not to affect the export of coin. There is nothing in this state of affairs to lead to any great apprehensions for the coming year. The situation of Ireland is indeed awful, but if its inhabitants get food to eat, it must be at the expense of the British government, and purchased of the United States. The state of the exchanges between the United States and England is, and has been, such as to make the payment of large sums of specie necessary to the purchase of food. This is favorable to every interest of the United States, except cotton, which, in usual years, is found to be unfavorably influenced by the rise in food. The past six months is, however, an exception, inasmuch as that cotton has improved in common with food. It appears, nevertheless, that the consumption of cotton in England has declined. The following is a condensed statement of the cotton trade of Great Britain, for several years :—

	1842.	1843.	1844.	1845.	1846.
W't of yarn, spun, lbs.	345,751,444	437,589,441	445,577,480	484,766,487	495,033,109
“ “ exported.	268,352,474	322,841,410	323,362,810	336,866,327	354,291,740
Consumed in G. Br'n,	77,398,970	114,748,031	122,214,670	157,900,160	140,741,360

These returns, which are from “Burns’ Glance,” indicate that the consumption, though less last year than in 1845, was double that of 1842! The particulars of the exports were as follows :—

	1842.	1843.	1844.	1845.	1846.
Plain calicoes, y'ds...	366,040,519	520,941,635	569,677,792	613,138,645	618,830,181
Prints,.....	236,012,641	257,287,304	313,111,445	310,850,697	267,084,797
Yarn,..... lbs.	136,537,162	149,214,437	133,901,913	131,937,935	157,130,025

The consumption of cotton last year was near 500,000 bales in excess of the receipts, reducing the stock to that extent. Should the same degree of consumption take place this year, with a United States crop of 2,000,000 bales, the stock will be *entirely exhausted* before its close. Hence, to preserve the present stock, which is as small as is safe, a diminution of consumption, to the extent of 500,000 bales, *must* take place. How is this to be effected? At the close of the year 1838, the stocks of cotton in the ports had considerably increased, and, alarmed by the cry of short crops, spinners had laid in stocks ahead. One spinner laid in

a three year's stock, at the rate of 10,000 bales per annum; being enabled to do so by the large crop of 1838. Notwithstanding that, and an average price of 72s. for wheat, throughout 1839,—accompanied by a great financial revulsion,—the reduction of the Bank of England to the point of bankruptcy, and the final ruin of the United States Bank, the consumption of cotton in England was reduced only 150,000 bales. The highest point which wheat has yet touched this year is 67s., and all the people of England who consume cottons, are well employed by railroads and other means. Ireland consumes but little cotton. The cost of cotton cloth does not advance in the same proportion as the price of the raw material. How high, therefore, must the price of cotton rise to diminish consumption 30 per cent? It is evident that a short supply must take place, even if the crop reaches 2,100,000 bales. The falling off in the crop, this year, is in the heavy bales of the Mississippi. According to the proportion received, and the weights of last year, the weight of cotton will be as follows:—

1845-6 crop.....bales	2,055,713	.....lbs.	905,880,739
1846-7	2,000,000	.....	859,756,000

Hence, 2,110,000 bales would but equal the weight of last year.

Under all these considerations, to which we have but alluded, it follows that Great Britain must buy largely, and pay well for what she buys, as well farm produce as cotton; and as exchanges are largely in our favor, considerable sums of specie, in addition to the \$3,000,000 already received, must arrive. All that England loses will probably come here, and a collapse in English credits is now comparatively of small importance on this side of the Atlantic. It will, indeed, affect speculative prices to some extent; but in former years, more particularly 1837 and 1839, a large portion of the business done here depended on credits centering in London, and was the first portion thrown off by the bank; out of the broken credits of those years has grown present security. The business of the United States, with England, is now on a cash basis. A great institution, like the late National Bank, is not now dependent upon the favors of foreign banks, not only for its ability to meet its present payments, but for its very existence. We have large and surplus products, which England must have, and which she must pay for. When her currency is full, prices may rule somewhat higher than when money is scarce; but when the demand is urgent and effective, a raising of the rate of interest and security will not affect prices. A singular instance of this was apparent in 1838, '39. In November, 1838, the bullion in the Bank of England was £10,000,000, and the price of wheat, 69s. It fluctuated from 69s. to 78s. throughout the year, during which the bullion diminished to £2,250,000, and the rate of interest rose from 3 to 6 per cent. All the efforts of the bank could not diminish the price, or check the import of grain, until the supply was enhanced at home. Such a position is now occupied by all American produce. To whatever extent Great Britain must have produce, she must pay, and pay liberally. The vast capital that she has garnered up from all quarters of the world, through centuries of prosperity, she must expend for food, because she has misgoverned a nation until starvation for the many seems imminent.

The external commerce of the country being thus prosperous, with high prices for all descriptions of the products of industry, the shipping never before so actively nor so profitably employed, and money pouring in from abroad, the future is indeed bright, as far as commercial and industrial interests are concerned.

The continuance of the war, manifests its adverse influence in financial affairs only, through the means adopted by the government to obtain extraordinary supplies for the Treasury. We have, in a previous number, referred to the loan bill; but as it has since become effective, we may remark upon the nature of its operation. The law allows the issue of \$23,000,000 of notes, to bear not more than 6 per cent interest, to be redeemed at the Treasury, after one or two years, or to be funded, at any time presented by the holder, in a 6 per cent stock, semi-annual interest, redeemable in 1867, and transferable at the Treasury; the interest on the notes to cease at sixty days notice. The \$5,000,000 notes outstanding, under the act of July, 1846, are put on the same footing. The notes may be paid out at par, to creditors, at their option. They may also be pledged for money, at par. When returned to the Treasury, others may be issued in their place. Instead of issuing these notes, the Secretary is authorized to issue the 6 per cent stock redeemable in 1867. The power to issue notes, is to cease in six months from the date of a treaty of peace with Mexico. The proceeds of the public lands are appropriated, after 1847, to the payment of the interest on the debt thus created; and if there is any excess of avails, it is to be applied to the purchase of the notes, or stock, at par.

Under this law, the department borrowed money at par, on \$5,000,000 of notes, payable in specie, either in New Orleans or New York; and, on the 9th of February, advertised for the remaining \$18,000,000 on Treasury notes, at 6 per cent interest, payable semi-annually. The effect of this movement was adverse to the market value of the old stock. It had been supposed that the notes would be issued at a low rate of interest, and of small denominations, depending upon the custom-house demand to support their value. In this view, they were regarded as a currency, the effect of which would be rather to enhance the abundance of money than otherwise. The high rate of interest at which they were put out, however, changed their character to that of a means of drawing money from those reservoirs where it usually accumulates, for purposes of discount. This would naturally be the case where they can be had at par; inasmuch as that those sums of money that lie usually in bank, on deposit, applicable to the payment of duties, would rather be applied to the purchase of notes, drawing 6 per cent interest, and available for the same purpose.

The arrival of a large sum, near £400,000, (\$2,000,000,) by the *Hibernia*, caused some increased abundance of money, which, however, again became more difficult to be obtained, unless for the best security. The imports have by no means been so large as was anticipated under the new tariff. The Secretary of the Treasury, in a reply to certain resolutions of the Senate, in relation to such articles as would yield a larger revenue at higher duties, gave a table of the duties received at five cities for the first fifty-five days of the new tariff. The result was, receipts of \$3,730,117, against \$3,029,457, last year, an excess of \$700,669. It is probable, however, that a portion of this increase was owing to the warehousing of large quantities of goods under the old tariff, to be taken out under the new.

The warehousing process is rapidly growing in popularity, and will afford the greatest facilities to merchants of small capital. The extensive buildings erected in Broadway by the government, and supposed to be extensive enough to hold all the bonded goods, are proved to be very insufficient for that purpose.

There is a warehouse bureau in the custom-house, under the direction of D. P. Barhydt, Esq. In this bureau are kept ten large ledgers, in which are recorded all the particulars of each package of merchandise in warehouse. These packages require an endless variety of descriptive particulars, all of which require to be entered alphabetically; and from these, are made up the quarterly statistical report, required by law.

When goods are entered for warehouse, an entry certificate is made out, as follows:—

CUSTOM HOUSE, NEW YORK, Collector's Office, September 6, 1846.

WAREHOUSE ENTRY.

Entry of merchandise imported on the 2d day of September, 1846, by William Wilson, in the ship Roscoe, Delano master, from Liverpool.

Marks.	Nos.	Packages and contents.	Quann'y.	20 per c't.	25 per c't.	30 per c't.	100 per c't.	Total.	Dutiable val each package.
(B)	1	1 cask brandy.....	90 gal's.	..	..	..	£90	£90	..
	2	1 case linens, 59 pieces....	1,350 yds	£82 10	..	..	..	62 10	..
	3	1 case cloths, 2 pieces....	35 yards.	..	..	£17 6	..	17 6	..
	4	1 case merinoes.....	21 p'ces.	..	..	42	..	42	..
	5	1 case cambric dimity....	300 p's..	60	..	..	..	60	..
	6	1 case printed muslins....	50 p'ces.	37 10	..	..	..	37 10	..
	7	1 case Gros de Naples, 20 p. 600 p's..	..	..	£90	..	..	60	..
	8	1 crate earthenware.....	per inv'e	..	..	10	..	10	..
	9	1 trunk clothing.....	per inv'e	..	..	50	..	50	..
	10	1 demijohn cordial.....	5 gallons	..	..	..	10	10	..
		Inland trans'n & ship'g ch's	160	..	60	119 6	100	439 6	..
			1 6	..	6	1 2	1	3 14	..
		Commissions 2½ per cent..	161 6	..	60 6	120 8	101	443	..
			4 0 8	1 10 2	3 0 2	2 10 6	11 1 6		
			165 6 8	61 16 2	123 8 2	103 10 6	454 1 6		

WILLIAM WILSON.

If a part of this invoice is to be withdrawn, an entry is made, as follows:—

CUSTOM-HOUSE, NEW YORK, Sept. 26, 1846.

Entry of merchandise intended to be withdrawn from warehouse by Henry Thomas, for transportation to St. Louis, which was imported into this district on the 2d Sept., 1846, by William Wilson, in the ship Roscoe, whereof Delano was master, from Liverpool.

Marks.	Nos.	Packages and contents.			
(B)	5	One case cambric dimity.....	300 pieces	£60	
		Charges.....	.....	0	12
		Commissions.....	.....	1	10
				62	2

£62 2s., equal to \$301; at 20 per cent, \$60 20.
Amount of duties, \$60 20.

HENRY THOMAS.

These are called "entry" and "withdrawal certificates," and duplicates are always made out. A new feature has been added, which is, to make three copies of these certificates, and on presenting one of each to Mr. Barhydt, the Register, from them he makes out, and delivers to the importer, a certificate, specifying the goods and packages accurately, the names of the importer and owner, and the dutiable value of the goods. This certificate is transferable by endorsement, and

its presentation is necessary to the release of the described package. It is manifest at once to the business man, that this certificate is of incalculable importance. He, in fact, for all purposes of sale and transfer, carries his invoice of goods in his waistcoat pocket. It is the best possible security for all descriptions of loans, payments, or insurance. The certificate may pass from hand to hand, from importer to jobber, and from one jobber to another, and finally to a country merchant, who may take the case from the custom-house. For one invoice, as many certificates may be issued as there are packages. An importer may divide up, and sell an invoice by certificates, and jobbers may transfer them again to their customers, who may ultimately take out the package—he who buys pays the duty on it. As a matter of security, these certificates must become the most valuable, both to banks and capitalists. They are as secure and as available as mint certificates. We look upon this practical operation of the warehousing system as a new era in the commerce of the country, more particularly that the prosperity of the export trade must be followed by large returns; and the greater the convenience given to the realization of those returns, the greater will be the welfare of all concerned.

THE COST OF RAISING WHEAT.

In relation to the interesting subject of the cost of raising wheat in this country, we have received the following letter from an intelligent farmer of the western part of this State, commenting upon a paragraph in the *Merchants' Magazine* for October, 1846. It will be observed that the writer mistakes the point of our remarks. But we will let our correspondent speak for himself, and then proceed to show the irrelevancy of his statements.

FREEMAN HUNT, Esq.—SIR: In your *Commercial Chronicle and Review*, for October last, the following passage occurs:—"The highest authority of the West states that wheat can be delivered in sacks, on the borders of the great lakes, at 16 cents per bushel, free on board, which would make a price of 40 cents in New York, or, allowing a large margin, 50 cents per bushel, free on board, which would be equal to 19 shillings sterling per quarter, and this in quantities which can scarcely be limited."

I do not know to what authority you refer in this passage, but to any one practically acquainted with the cost of raising wheat the statement is certainly incredible. As this is a subject of some interest to the commercial public, and also to our foreign customers, who may be more or less dependent upon us for bread, and as I have had considerable practical acquaintance with the cost of raising wheat on one of the best wheat-growing farms in the best wheat-growing town of this State, I have thought it might not be uninteresting to the readers of your journal to state about the cost of raising a bushel of wheat in the most favored region of western New York.

Since noticing that statement I have visited some of the best and most favored localities of the West, during which I have had pretty extensive opportunities, both from personal observation and intercourse with practical men in the States of Ohio, Indiana, Illinois, Michigan, and Wisconsin, to get information on this subject; and I have no hesitation in saying, that wheat cannot be raised in any considerable quantities, nor in any quantities at all, for 16 cents per bushel. It cannot be raised for less than 35 to 45 cents per bushel. And I think it is very doubtful whether it can be raised to as good a profit in any of these States as in the most favored sections of our own New York.

It appears from the census of this State, that there are but two towns in the State that exceed an average of twenty bushels per acre, and for the State it is considerably less than that; but assuming that amount as an average in the most favored localities, and I am satisfied that there is no section of any considerable extent that will, for a term of years, exceed that amount, either in this or the western States, I propose to state the expense of raising a bushel of wheat, nearly, in New York, from my own experience, and from observation and information derived from practical men of the West. The first item is the interest of the price of the land, which say for New York \$50 per acre, \$3 50; next ploughing, say twice, at \$1 25 per acre, \$2 50; then harrowing three times, 25 cents per

acre, 75 cents; seed one and a half bushels per acre, at 88 cents per bushel, \$1 31; sowing, 6 cents per acre; harvesting, about \$1 50; threshing, one-tenth at twenty bushels per acre at 88 cents per bushel, would be \$1 75; then there is drawing to market, which varies very materially according to the distance it has to be carted—my own costs me about 75 cents per hundred bushels, which would be about 15 cents per acre; then there is the wear and tear of teams and utensils of husbandry, which say 25 cents per acre; and I think most practical farmers will sustain me in having put the cost of the different items of expenditure low enough, and we shall have for the aggregate expenditure \$11 77, in round numbers \$12, which, on an average of twenty bushels per acre, would be 60 cents per bushel nett cost.

At the West, the chief difference in the expense will be found to consist in the difference on the interest of the land, and the less price of wheat for seed; as the ploughing, harrowing, sowing, harvesting, etc., will cost about the same; and then the facilities for marketing are not generally so good in the Western States as they are here—indeed it is not uncommon to find men, even in the State of Ohio, who have to draw their wheat from thirty to fifty miles to market. Where this is the case, so far from being able to put their wheat free on board at 16 cents per bushel, it will cost them more than a moiety of that sum to perform the single item of drawing it to market.

One observation may I think be made which experience will justify:—that with a low price for wheat, say from 40 to 50 cents, in the principal markets, the supply will always be limited; this arises from the supplies which lie at a distance from markets not coming forward, as they never can in any great quantities at such low prices, because the cost of transportation bears so great a ratio to the price received; but when the price rules higher, say from 6 to 7 shillings, the supplies will be abundant, as these prices will enable the holders at distant points to bring forward their whole supplies. The state of facts in last year was an exemplification of these remarks: in the early part of the season prices ruled low and the supplies were limited, but after the advance of prices in September, in consequence of the advices from England, they continued to flow with such an increasing volume, that prices of flour were depressed in New York to a lower point, and for a greater length of time, than were ever before known.

W. S.

Wheatland, Monroe County, N. Y.

Our correspondent assumes that the wheat culture, in the State of New York, is a criterion for that in the localities to which we alluded, as being able to raise it at 17 cents. The fact of the ability of the lake shores to raise wheat at fifteen cents, was established before the American Institute last year. In our article, we said 17 cents, to make a small allowance. The first item in the calculation of our correspondent, of \$3.50, for interest, is one to which western culture is not exposed; on the other hand, that amount will buy the land in fee simple, and fence it. The breaking up of prairie land costs \$1.75 per acre, and the land is then ready for "sod grain," of which it will produce 20 bushels. The smooth lands of the western lake shores afford facilities for machine labor, that saves great expense in the items of harvesting and threshing, reducing them to half what our correspondent allows, and the item of seed is erroneous, inasmuch as that the quantity of seed corn should be deducted from the product, and the cost averaged upon the balance. Thus, the sum of his items is \$11.77; deduct seed corn, \$1.31—leaves \$10.42, which, on 18½ bushels, is 56 cents, instead of 60. In Wheatland, Monroe county, the residence of our correspondent, the average product, according to the census of 1845, is 22 bushels to the acre, (which would make the cost 51 cents, instead of 60, as he has it,) and yet the population of that town decreased 5 per cent, in 1840 to 1845; and the production of wheat in that town was only 109,000 bushels in 1845, against 106,000, in 1840. It is to be observed that the items of buying land, fencing, and breaking up, are incident to western farming only the first year, when the product is 20 bushels, and will cover the expense. After that, the light-ploughing, harrowing, threshing, harvesting, carting, drawing, wear and tear, &c., will, at the outside, reach \$4.50 per acre—but we will say \$5.00—and 30 bushels will be raised,

from which deduct 2 bushels for seed, and 28 bushels will cost 17 cents each. This is the case with western farming, although our correspondent may be nearly right as to New York wheat. Again, in relation to the cost of wheat on the river counties of Illinois, an intelligent farmer, of large experience, stated to a member of the American Institute,* (in reply to a question as to the cost of producing a bushel of wheat in that region,) as follows:—

"To hire the land and all the culture, with every expense, it would not exceed, on an average, 30 cents per bushel."

Now, it will be supposed that these facts would produce results. Unfortunately for the State of New York, they have done so. Take the State census for 1840, and point off the eight largest wheat counties, and compare their product and population in 1840, with 1845, as follows:—

	WHEAT PRODUCED.		POPULATION.	
	1840.	1845.	1840.	1845.
Cayuga	601,824	652,896	50,362	49,663
Genesee.....	911,596	1,025,218	59,605	57,294
Livingston.....	823,050	821,762	35,710	33,193
Monroe.....	1,074,320	1,333,585	44,718	45,634
Ontario.....	770,235	918,616	43,501	42,592
Orleans.....	680,202	692,127	25,015	25,845
Wayne.....	571,083	587,817	42,160	42,515
Yates.....	705,628	403,069	20,442	20,777
	6,137,838	6,441,090	321,538	317,613
Increase.....		303,252		
Decrease.....				3,935

The population for Monroe, excludes the city of Rochester, and Genesee embraces Wyoming. Here is an actual decrease in the population of the great wheat-growing counties of New York. Let us now look at the large wheat-growing counties of Michigan:—

	WHEAT.	POPULATION.	
	1840.	1840.	1846.
Calhoun	176,630	10,599	15,749
Cass.....	95,101	5,710	8,078
Jackson.....	180,649	13,130	16,853
Kalamazoo.....	161,168	7,380	10,192
Lenawee.....	167,891	17,889	23,011
Oakland.....	264,965	23,646	30,288
St. Joseph.....	131,451	7,068	10,097
Washtenaw.....	216,597	23,571	26,979
	1,394,452	109,183	141,247
Increase.....			32,064

There is no report of the wheat product of Michigan, with the census of 1845, but we may compare the exports of Detroit, St. Joseph's, and Monroe, as follows:—

	1841.		1846.	
	Flour.	Wheat.	Flour.	Wheat.
Detroit.....	180,000	51,000	464,092	114,397
Monroe.....	9,302	23,015	155,108	372,847
St. Joseph's.....	68,600	90,612	129,333	235,645
Total.....	257,962	164,627	748,533	722,889

* See New York Farmer and Mechanic, Vol. IV., p. 138—1846.

Now it is to be observed that the exports in bushels of wheat from those cities were 1,354,137 bushels, nearly equal to the product of the eight counties in 1841. If the exports in 1846 bear the same proportion to their products, the wheat crop of those counties must have increased 2,800,000 bushels, or 200 per cent, in the same time that the product of the New York counties has increased by 5 per cent, and the population decreased. These are the legitimate results of the figures we have pointed out in relation to the cost of wheat at the West. It will be observed that the argument of our correspondent, that low prices failed to call out wheat, holds true of New York; but the prices which did not remunerate the New York farmer, stimulated western production in the manner we have seen, and New York farmers moved West to avail themselves of the difference. The western ports nearly all show similar results. In 1844, Chicago exported, in flour and wheat, 935,000 bushels; and in 1846, 1,458,672 bushels. This large increase has been without internal means of communication, and mostly in seasons of low prices. Last June flour in New York was under \$4. Next spring the Illinois and Indiana canals will throw open vast tracts of land, capable of cultivation at the low figures we have named.

MERCANTILE MISCELLANIES.

MERCANTILE LIBRARY ASSOCIATION OF MONTREAL.

WE have received, with "the compliments of the Board of Directors," the sixth annual report of this flourishing institution, from which we learn that it is entirely free from debt. The library contains 4,209 volumes, and the number of books issued during the year 1846 was 3,900, exclusive of periodicals to the extent of about 500. Of the 446 members composing the association, 340 constantly avail themselves of the library. The increase of these numbers, compared with those of former years, especially in regard to the books issued, is matter of just gratification to the Directors, as furnishing strong evidence of the growing usefulness of the institution. Of the fourteen monthly journals, with which the rooms are supplied, the "Merchants' Magazine" is the only one from the United States. A course of lectures was commenced on the 10th of December. At the previous annual meeting a prize was offered for an essay on "Commerce, its Objects and History." But one essay, only, was submitted; and the prize was awarded to Mr. Alexander Morris. The following gentlemen constitute the Board of Directors, for 1847:—J. H. Winn, President; G. H. Frothingham, Vice-President; S. Lester Taylor, Corresponding Secretary; Robert Lindsay, Recording Secretary; Charles Freeland, Treasurer; Alexander Morris, John M'Gill, David Lindsay, S. R. Evans, John Murray, J. W. M'Glashan, A. M'Donald, D. Busted, David Muir, A. D. Macdougall, Directors; John Young, Esq., H. E. Montgomerie, Esq., W. C. Evans, Esq., Donald Fraser, Esq., Honorary Directors.

LAW OF "RESPITE" IN LOUISIANA.

We invite the notice of our readers to the article in the present number, upon Louisiana Law, on the subject of "*Respite*." We were not before aware, and we doubt if many of our merchants are at all informed, of the existence of such a peculiarity in the jurisprudence of one of our sister States—a peculiarity so deeply affecting their rights and interests, in their creditor relations to the merchants of that State. We hope often to hear from our New Orleans correspondent.

MERCANTILE LIBRARY ASSOCIATION OF NEW YORK.

The twenty-sixth annual report of this excellent institution has been published, and, as usual, exhibits the affairs of the association in a sound and healthy condition. The number of members at the close of the year 1845, as stated in the last annual report, was 2,129. The withdrawals for the year 1846, were 295. New members added the past year, (1846) 609. The whole number of members on the 1st of January, 1847, 2,443; exhibiting a nett gain of 314 during the year 1846. From the Treasurer's report, it appears that the balance on hand 31st of December, 1845, was \$603 16, and that the receipts from all sources in 1846, amounted to \$5,060 61—making a total of \$5,663 77. The expenditures for the same period, were \$4,889 46—leaving a balance on hand 31st of December, 1846, of \$774 31.

A comparison with the statement of the Treasurer in the last annual report, shows the present condition to be more favorable than even the improvement manifested at that time, and sustains the opinion expressed in the report, that the darker days of the institution have passed away, and that the future opens brighter prospects. It will appear, on comparing the two reports, that the receipts for initiation fees, and quarterly dues, are \$208 greater, while the expenses, salaries, light and insurance, are \$229 less, than the previous year; thus enabling a larger expenditure for books and periodicals; the amount laid out for which is \$444 more in the last year, than in the preceding; and there has also been \$114 greater amount paid for binding and printing, than for the corresponding period. The association, we are happy to state, remains entirely free from debt.

Nearly two thousand volumes have been added to the Library during the year 1846, making the total number at the present time, 24,623. The following statement has been carefully compiled from the reports made by the several Boards of Direction, commencing January, 1836, and exhibits for each year the initiation fees and quarterly dues received, the expenditures for books and periodicals, and the number of volumes added, to the present time:—

	Fees.	Dues.	Cost of Books and periodicals.	Volumes added.
1835.....	\$680	\$3,169 06	\$2,126 32	1,522
1836.....	867	3,861 50	2,286 74	1,845
1837.....	936	4,770 00	2,806 47	2,547
1838.....	1,003	5,788 50	3,115 72	2,471
1839.....	1,097	6,482 00	4,278 23	3,583
1840.....	501	6,183 00	1,995 19	390
1841.....	627	6,029 50	1,495 12	1,136
1842.....	308	4,998 75	2,179 79	1,252
1843.....	248	4,002 75	797 90	465
1844.....	387	3,461 00	708 35	745
1845.....	582	4,024 50	1,628 60	1,428
1846.....	609	4,206 00	2,072 59	1,883

Every merchant, and every merchant's clerk, should belong to an institution so eminently adapted to advance their own personal progress, as well as that of society.

CUSTOM-HOUSE AND EXCHANGE AT VALPARAISO.

The custom-house at Valparaiso is a beautiful and spacious building, and from its situation on the Muele (Mole) is an object which attracts the attention of all who arrive at Valparaiso. In the neighborhood of the custom-house is the exchange. It is a plain building, and contains a large and elegant reading-room, in which may always be found the principal European newspapers. In this reading-room there is also an excellent telescope by Dollond, which is a source of amusement, by affording a view of the comical scenes sometimes enacted on board the ships in the port.

WASHINGTON, AS A MERCHANT!

By every variety of commentary, has almost every fibre of the character of this extraordinary man been illustrated. His military talent has, in all its phases, been brought to the notice of the world—weighed, analyzed, reviewed—until it has come out of its fierce ordeal, established, as of the very first order of judgment, energy, bravery. His reputation as a statesman has been blazoned abroad with a vigor, derived alike from the truth and its forcible use. Men have honored themselves by giving the power of their intellect to the history of his devotion to his country. All his movements in war—all his acts in the cabinet, are on record; and he is one of the very few men that ever trod the earth, of whose reputation it is safe, that the knowledge of it should be thorough.

But George Washington was a great man, in other departments of life than those blended with the army and the state; and it is to a feature in his character, less prominently before the world, but one of the most valuable, of which we would speak in this article. It is the order, regularity, method, punctuality, and, above all, the rectitude—the unsullied and unchangeable devotion to his engagements, which distinguished him, and which, combined, are the very qualities that make up the merchant. In all these, the example of Washington may fittingly be urged upon the consideration of the merchants of the Union. The old merchants of the colonies were the very men who perilled the most in arraying themselves on the side of a separation from England. Theirs was no cheap patriotism—no offering of words; but the severing of a profitable mercantile connection—the riving asunder of relations that involved sacrifices alike keen and costly. From among those merchants, some of the most valued and useful of the officers and soldiers of the revolution were taken, and they proved themselves as active in the trade of war, as they had ever been vigilant in the war of trade.

The education of Washington was purely a practical one. All that he added to this was the result of efforts in maturer life, generally made, as events demonstrated the particular necessity of the study. This was a business foundation, early laid; and though at a time of life when boyhood is usually in its recklessness, the various parts of a business education were thoroughly built up in his character.

At the age of thirteen, he studied the intricate forms of business with an ardor which showed what was in him—with a method which demonstrated how that was to be developed. He copied out bills of exchange, notes of hand, bills of sale, receipts, and all the varieties of the class, which he denominated “Forms of Writing,” and these are remarkable for the precision and the elegance with which they are copied. His manuscripts, even then, were of the utmost neatness and uniformity; the diagrams always beautiful; the columns and tables of figures exact, and in unstained and unblotted order. Old Tim Linkinwater would have looked most approvingly over *his* work, and admitted “George” to the awful books of “Cheeryble, Brothers.” His excellent historian, Mr. Sparks, who has given us that rarest of all books, a reliable biography, remarks, that these excellent habits of method and order, thus early formed, continued throughout life. His business papers, ledgers, day-books, in which none wrote but himself, were models of exactness. The description of them might apply to those of the most careful book-keeper in our metropolis. Every fact had its place, and was recorded in a plain, clear handwriting, and there was neither interlineation, blot, or blemish! Frank Osbaldistone’s father could have asked no more. Is it any wonder that with such ideas of what the methods of a business man should be, we should find as one of his “Rules of Behavior,”—a code of laws drawn up for his own government, when at the immature age to which we have already referred, and wonderful in their fitness—the following:—

“12th. Let your discourse with men of business be short and comprehensive.”

In the 46th. “Undertake not what you cannot perform, but be careful to keep your promise.”

These rules—this manifestation of a “business talent,”—were not merely the development of some temporary purpose, but firmly fastened rules of life, which were made to mould his life, and their value to him soon became manifest. He left school at the age of sixteen; and such was his reputation for probity and habits of business—for diligence and habits of despatch—that several eminent Virginia gentlemen were anxious to secure his services; and he soon became busied in laborious duties, the cares of which found an agreeable relief by the society of his cherished brother Lawrence, at Mount Vernon, a name, whose associations were thereafter to be rendered so glorious. With that brother, in 1751, he left the soil of his country for the first and last time, and made a visit of four months to the West Indies. Throughout all this tour, the traits of character, of which this article is particularly designed to speak, were constantly manifesting themselves. He daily copied the log-book, noted every thing, looked at every thing, and was never idle. When at Barbadoes, the commerce of the island was one of the subjects, concerning which, he made investigation, and about which, he made appropriate records in his journal.

The time soon came for him to be the actor in the greater scenes of life, and were it within the design of this article to follow his steady advance from one station of usefulness and honor to another, it would only be to point to the same unchanging rectitude, and fidelity to every engagement—the same precise order—the same undeviating exactness. The boy, who had with such care collated and prepared the details of an exercise at school, brought into like order the statistics necessary to be studied before a campaign could be wisely commenced. Every thing that could illustrate the duty of the soldier—the province of the commander—the plan of attack or defence—the topography of the field of battle—was, by his indomitable industry, his steadfast method, brought into a condensed form, that it might be easily grasped by the mind—that “the business” of the war might be well done.

Nor was it in war alone, that the man of order developed himself. We quote, in full, what Mr. Sparks says upon the subject of his conduct in this respect, when President of the United States:—

“During the presidency, it was likewise his custom to subject the treasury reports and accompanying documents to the process of tutular condensation, with a vast expenditure of labor and patience; but it enabled him to grasp, and retain in their order, a series of isolated facts, and the results of a complicated mass of figures, which could never have been mastered so effectually by any other mode of approaching them.”

From 1759 to 1764, Washington was, in some measure, an acting merchant; for, in that calmest period of his life—after the brief, but brilliant episode of the Braddock campaign, most honorable to himself, however disastrous to one whose name was more prominent, and before the great drama of the revolution—he regularly exported to London the product of his large estate on the Potomac. The shipments were made in his own name, and to his correspondents in Bristol and Liverpool, to which places his tobacco was consigned. Are there none of those precious bills of lading yet in existence? They would be valued by many of us, on this side of the water, at least, as evidences of the attention which he gave to all his business.

In return for the articles exported, it was his custom, twice in each year, to import, at that period, from London, the goods which he desired to use; and Mr. Sparks thus delineates how accurately he fulfilled his duties as an importer:—

“He required his agent to send him, in addition to a general bill of the whole, the original vouchers of the shop-keepers and mechanics, from whom purchases had been made.

“So particular was he in these concerns, that he recorded with his own hand, in books prepared for the purpose, all the long lists of orders, and copies of the multifarious receipts from the different merchants and tradesmen who had supplied the goods. In this way, he kept a perfect oversight of the business; ascertained the prices; could detect any imposition, mismanagement, or carelessness, and tell when any advantage was taken of him; of which, if he discovered any, he did not fail to remind his correspondents.”

And all this, we must remember, was while he had the charge of the vast estate of Mount Vernon, and while he was dispensing a large and generous hospitality.

When the French war had ended, it became his duty to attend to the settlement of the complicated military accounts of the colony of Virginia, a task, arduous enough, but, like all the other duties of his life, faithfully performed.

The war of the revolution left him no leisure for personal attendance on his private business, but yet it was never neglected. He could not be personally present; but while the noises of the camp, the preparations for battle, the deliberations of councils, were all shared in to the utmost, his correspondence about his home affairs, were as thorough and minute, as though he had been an absentee of leisure.

His accounts, while engaged in the service of his country, were so accurately kept, that to this hour they are an example held up before the nation. His habits of business enabled him, amidst the tumult of the revolution—its fierce contests—its sufferings and disorders, to so methodize and record all the business incidents of each day, that the end of the war found him prepared to lay before Congress an exact statement of his expenditures. There was about him a pervading principle of order, not of a lifeless, sluggish cast, but life-like and energetic; so that, while every thing was well done, it was done in time and in earnest.

Let any one read his will, and they will rise up from the perusal, with the conviction, that a more thorough man of business never lived. There have been many documents of a similar kind, drawn up with wonderful care and labor, and at vast remuneration, by gentlemen learned in the law, but none where every incident is so carefully attended to—not in the spirit of fearfulness of flaws and evasions, and all the thousand munitions of attack to which they resort who "break" wills—but in the orderly, sound, business-like manner, in which a Gresham might have written his projection of an exchange.

But we need point to no isolated instance. His whole life establishes the fact, that a more perfect man of business never lived than was George Washington.

Valueless, indeed, in the comparison, had they stood alone, would all this method, and order, and industry be. A merchant may have all these, and yet be but sagacious and—unprincipled; but of this man, a nobler record is left to us. I quote only what Thomas Jefferson has said, and *he* spoke certainly with no improper bias:—

"HIS INTEGRITY WAS MOST PURE."

To the merchant of the United States, the example of *Pater Patriæ* has not been, and will not be lost. So prompt to do—so exact in doing—so wise to know what was to be done—so prudent as to what should *not* be done—such unsullied honesty—such pure integrity. These are the qualities that, combined, make up the good and great merchant; and as they were eminent in George Washington, may he not be claimed as well by the merchants, as by the soldiers, or farmers, or statesmen?

W. H. B.

PUBLIC LOTTERIES OF LIMA, PERU.

In Lima, there is a public lottery, which the government farms to a private individual, for a considerable sum. The tickets are drawn weekly. The price of a ticket is one real. The largest prize is \$1,000; the smaller prizes, \$500, \$250, or \$100. A lottery on a larger scale is drawn every three months. The highest prize in this lottery is \$4,000, and the price of the ticket is four reals. To every ticket is affixed a motto, usually consisting of an invocation to a saint, and a prayer for good luck, and at the drawing of the lottery, this motto is read aloud, when the number of the ticket is announced. Few of the inhabitants of Lima fail to buy at least one ticket in the weekly lottery. The negroes are particularly fond of trying their luck in this way, and in many instances fortune has been singularly kind to them.*

* Tschudi's Travels in Peru, in 1842; published by Wiley & Putnam.

THE PRAYING PARSEE MERCHANT.

The following is an extract of a letter from the Rev. Mr. Hume, missionary at Bombay, to the editor of the "Dayspring." Mr. Hume says there are about twenty-five thousand Parsees, or followers of Zoroaster, resident in Bombay, and that they constitute the most intelligent, enterprising and wealthy class of the native population. Our own favored Christendom, (we say it reverently,) is not without its praying merchants, who know how to drive a good bargain:—

"A few days since, I had occasion to go into the shop of a Parsee, with whom I am considerably acquainted. It was in the afternoon, and I found him standing on the steps of his shop, with his face toward the setting sun, busily engaged in repeating his prayers. Many people were passing along the street just before him; but this seemed to cause him no concern, unless when he had occasion to bow to some acquaintance. When I turned to enter his shop, he gave me a very cordial salutation, bowing and waving his hand for me to enter, but all the time repeating his prayers as rapidly as ever. Perceiving that no one was present in the shop to attend to me, he clapped his hands several times, making a loud noise, the object of which seemed to be well understood by the family, as his son, a young man of about twenty years of age, came running into the shop.

"I asked him the price of the article which I had come to purchase; when he, being in doubt, went and inquired of his father, who, with the fore-finger of the right hand, wrote upon the palm of the other the price to be charged. The young man then came back and told what his father had said; but the price being extravagant, I objected to it, and told him what I would give. The young man, not feeling at liberty to act on his own responsibility, went and reported my offer to his father, who shook his head, and again wrote on his hand, as before, a sum considerably less than the first mentioned. The young man again came and stated the price now asked; which being still very unreasonable, I was about to leave, but said I would give him the sum offered at first if he chose to take it. The young man again hastened to his father with my offer, and, as he shook his head at this, I passed out at another door, leaving him repeating his prayers as busily as ever. While I remained, he appeared much interested in what was passing in the shop; and although praying with his face in an opposite direction, he every moment turned so far about as to catch a glance of us, and observe what we were doing.

"The person here mentioned is an intelligent, shrewd business man; but, alas, how blind in regard to spiritual matters! He readily acknowledged that we are indebted to God for every thing; but I have often seen him, early in the morning, bowing reverently in succession to the different articles in his shop, muttering over something at the same time. This is done from a superstitious belief that it may secure him good prices and prosperous business."

NOVEL COMMERCIAL SPECULATION.

We cut from the "Polynesian," published at Honolulu, the official organ of the Hawaiian Government, conducted by James Jackson Jarvis, an American, the following statement, which illustrates the genius and enterprise of the American character:—

"An enterprising Yankee at Canton has recently built a Chinese junk of about 300 tons, fitted and rigged entirely after the Chinese mode, which he intends taking to New York, loading her with every species of China knicknacs, curiosities, etc., to be sold on board after arrival off that city. He takes also a Chinese crew, a theatrical and juggling company, males and females, and every thing curious, illustrative of the manners and customs of the Celestials. The junk will have canvass-sails, and a *Christian* rudder, to make her suitable for the long voyage, but upon arrival at the Narrows, every thing foreign will be replaced by Chinese articles, mat sails, clumsy rudder and all, and the junk anchor off the city in her entire oriental costume and build, where she will remain as a show-shop, sale-room and mountebank exhibition. It is expected she will make the passage in five months. The cost of the whole affair will be about \$30,000, and the 'cute' proprietor will undoubtedly realize a large fortune. After having exhausted the United States, he has been offered \$20,000 to deliver his junk in England. The Manhattanese will stare as broadly at the strange sight of a cruiser from the flowery land sailing up their noble river, as did the aborigines when old Hendrick Hudson astonished their unsophisticated senses by a display of his Dutch canvass in their bay. The junks are said to be good sea-boats, and nothing worse than delay is feared in the voyage. We only wonder some one never thought of it before."

THE MERCHANTS AT VALPARAISO.

In Valparaiso, as in all seaports, there is a heterogeneous mixture of different countries, nations, languages, and manners, amidst which, the national character of the country is entirely lost. The trade in European goods is very extensive, but almost exclusively in the hands of a few great North American and English houses, who supply the whole country with the articles they import. At times, such is the overstock of importations, that goods are sold at lower prices in Valparaiso, than in Europe. The warehouses are so filled with some sorts of merchandise, that without any fresh supplies, there would be sufficient for some years to come. Among the clerks in the mercantile houses, Dr. Von Tschudi, the German traveller, in 1842, met with a great number of Germans, who all maintain an intimate association with each other. They have formed themselves into a union, and they have a very commodious place in which they hold their meetings. Following their example, the English have united together, and established several clubs. The French have not gained any considerable footing in this part of South America, in which there are scarcely two French mercantile houses of any consequence. On the other hand, there is abundance of French hairdressers, tailors, shoemakers, jewellers, confectioners, and *chevaliers d'industrie*. Neither is there any want of *modistes Parisiennes et Bordelaises*.

COMMERCIAL PROSPECTS OF SINGAPORE.

Mr. G. Davidson, in his recently published work, "Trade and Travel in the East," thus speaks of the commercial prospects of Singapore:—

"As to the commercial prospects of this island, I have some misgivings. The recent establishment by her majesty's government, of the British colony of Hong Kong, and the opening of the northern ports on the coast of China, will, I fear, give its commerce a check: indeed, it seems inevitable that it should suffer from these causes. When we consider the vast importance of the Chinese junk trade to Singapore, and take into account the cheaper rate we can supply them, now their ports are open, at their own doors, with every commodity they require from the Malay islands, the risk, trouble, and expense they will save by supplying their wants or disposing of their superfluities, in the harbors of Shang Hae, Ning-po, Foo Chow, or Amoy, instead of undertaking the long voyage to the straits of Malacca for that purpose,—one is at a loss to conceive on what grounds the sanguine expectation can rest, that the opening of China will do Singapore no harm. Some of its merchants evidently share in my anticipation, as they have completed arrangements for forming establishments at Hong Kong, in order to avail themselves of the change they expect to take place in the course of the trade. It will not be this year, nor, probably, the next, that this change will take place; but, that it must ultimately come to pass, I can see no room to doubt.

"In other branches of its trade, Singapore will, probably, not suffer so much from the late arrangements with China; but it will suffer more or less. It is extremely likely, that a large portion of the rice of Bally and Lombok, the pepper of Borneo, and the beche-de-mer of Celebes, will be carried direct to China in European vessels, instead of passing, as hitherto, through the hands of the Singapore merchants. Whenever a new mart is opened, there is no want of men, money, or ships to take advantage of it; and we can place pepper from Borneo, and rice from Bally, in any port on the coast of China, for less money, by carrying them there direct from the place of growth, than the Chinese can by carrying them from Singapore in their junks. These vessels only make one voyage in the year, whereas a square-rigged vessel can make three with ease; and it is on account of the greater service performed by the latter, that she can carry goods to market cheaper than a junk. I repeat, therefore, that I think the trade of Singapore has reached its maximum; and that the town has attained to its highest point of importance and prosperity. Indeed, it is at this moment rather over-built."

CONSUMPTION OF TEA IN THE WORLD.

The *Giornale del Lloyd Austriaco* gives the following statistics relative to the demand for tea:—It appears that from the 1st of July, 1845, to the 30th of June, 1846, there was a demand for 797,818,733 lbs. of tea, of which 705,732,024 lbs. were used in China itself, and the following quantities exported—viz., 57,584,561 lbs. to Great Britain and Ireland; 18,502,148 lbs. to the United States of North America; 2,000,000 lbs. to Holland; 5,000,000 lbs. to Russia, (by land); 3,000,000 lbs. to Hamburg, Bremen, Denmark and Sweden; 4,000,000 lbs. to Sydney and South Australia; and 2,000,000 lbs. to Spain and France.

JOURNAL OF BANKING, CURRENCY AND FINANCE.

BELGIAN SYSTEM OF WEIGHTS, MEASURES, AND CURRENCY.

BELGIUM has adopted the weights and measures of the French metrical system; the fundamental principle of which is the measure of length. Its unity, the metre, is the ten millionth part of a quadrant of the meridional circle of the earth. The length of the metre is nearly an inch less than an English yard and half a quarter; that is 3.28 feet.

The unit of superficial measure, the are, is a square, of which the side is ten metres.

The unit of the measure of capacity, the litre, is a cube, of which the side is the tenth part of a metre, 61.028 cubic inches.

The stere is a cubic metre, 35.317 cubic feet.

The unit of the measure of weight is a centimetre cube of distilled water; that is, a cube of which the side is a hundredth part of a metre.

The itinerary measures are the decametre, 10 metres; the kilometre, 1,000 metres; and the myriametre, 10,000 metres.

Land is measured by the hectare, containing 10,000 square metres; the decare of 1,000 square metres, or 1,196 square miles; the are, containing 100 square miles, and the centiare, which is one square mile.

For solid measure are used the stere, and decistere; that is, a cubic metre and its tenth part.

For the measure of weight are used the gramme, the decagramme, or 10 grammes; the kilogramme, or 1,000 grammes, and the quintal, or 100 kilogrammes.*

TABLE OF CORRESPONDING MEASURES, ENGLISH AND BELGIAN OR FRENCH.

Metre.....	3.28 feet, or 39.37 inches.	ctare.....	2.471 acres, 11,960 sq. yards.
Millimetre.....	0.039 inch.	Litre.....	1.760 pints, 61.03 cubic in.
Centimetre.....	0.393 inch.	Decalitre.....	2.201 gallons, 610.28 cub. in.
Decimetre.....	3.937 inches.	Hectalitre.....	22.009 galls, 2.84 W. bush.
Myriametre...	6.213 miles, 10,936 yards.	Gramme.....	15.434 grains Troy.
Metre carre...	1.196 square yards.	Kilogramme {	2.680 lbs. Troy, 2lb. 8oz. 3dwt.
Are.....	0.098 sq. rods, 119.6 sq. yds.		2.605 lbs. Avoir. 2lb. 3oz. 4dwt.
Decare.....	1,196 square yards.	Millior or Bar.	9 tons,—16cwt, 3qrs, 12lbs.

The Belgian kintal is equal to 103 lbs. English, or 47 kilogrammes.

21 Belgian kintals and 75 lbs., 1 English ton of 2,240 lbs.

10.1465 metrical quintals, 1 English ton.

The hectolitre, used in coal measure { 90 kilogrammes, or 2.84 Winchester bushels.
3½ cubic feet, or 22 imperial gallons.

11.26 hectolitres, 1 English ton. 1,014.65 kilogrammes, 1 ton,—in ordinary calculations, 1,000 kilogrammes are held as one ton.

1 hectare of land, 2.471 English acres.

1 Vierkantebunder, 119.6 English yards square, or 1 French acre.

1 metrical mile, 1,093 English yards, or 1 French kilometre.

1 mudde, 6,102 cubic inches English, or 2.837 bushels, or 100 French litres.

CURRENCY.—The franc is the monetary unit of Belgium, and its divisions are made according to the decimal system:—

1 franc, 9.69d. English, or 19½ cents United States currency.

20 francs, 1 Napoleon, 1 new Louis, 16s. 2d. English, or \$3.86 U. S. currency.

1 English sovereign in Belgian money, 25 francs, 20 centimes.

1 English shilling, 1 franc, 16 centimes.

* Chiefly derived from McCulloch's Gazetteer, and Loudon's Tables.

CHARTERED AND FREE BANKS OF NEW YORK.

The following is a summary of the resources and liabilities of all the banks in this State, on the 1st days of November, 1845 and 1846:—

RESOURCES.		
	1845.	1846.
	148 banks, 2 branches.	150 banks, 2 branches.
Loans and discounts.....	\$77,177,011	\$72,301,980
Real estate.....	3,645,684	3,642,711
Bonds and mortgages.....	3,181,746	2,784,012
Stocks and promissory notes.....	10,962,822	11,226,767
Bank fund.....	236,268	169,234
Loss and expense account.....	425,584	279,920
Over drafts.....	133,242	151,640
Specie.....	8,884,545	8,048,384
Cash items.....	5,947,585	7,786,699
Bills of solvent banks.....	2,258,862	2,421,069
Bills of suspended banks.....	14,482	10,005
Due from banks and bankers.....	9,534,166	9,318,635
	<u>\$120,401,997</u>	<u>\$118,141,056</u>
LIABILITIES.		
	1845.	1846.
	148 banks, 2 branches.	150 banks, 2 branches.
Capital.....	\$42,845,428	\$43,024,658
Profits.....	5,018,043	5,498,222
Circulation.....	21,375,369	22,268,522
Due Treasurer of the State.....	631,063	669,829
Due canal fund.....	1,581,330	581,737
Due depositors on demand.....	31,773,991	30,629,196
Due individuals.....	759,259	801,392
Due banks.....	12,829,854	12,978,464
Due Treasurer of the United States.....	3,002,649	1,098,330
Amount not included in above items.....	585,011	590,706
	<u>\$120,401,997</u>	<u>\$118,141,056</u>

CONDITION OF THE CHARTERED BANKS OF NEW YORK.

The following table shows the principal items of the bank statements of all the chartered banks of the State for the last five years, derived from the annual report of the comptroller of the State of New York:—

LIABILITIES.					
	Jan. 1, 1843.	Nov. 1, 1843.	Nov. 1, 1844.	Nov. 1, 1845.	Nov. 1, 1846.
	85 banks.	85 bks. 2 brchs.	83 bks. 2 brchs.	81 bks. 2 brchs.	80 bks. 2 brchs.
Capital.....	\$32,901,280	\$32,391,460	\$31,391,460	\$30,491,460	\$30,241,460
Circulation.....	9,734,465	13,350,334	15,114,686	15,831,058	16,033,125
Canal fund.....	1,464,496	1,111,357	1,214,790	1,244,524	398,080
Deposits.....	15,109,164	22,407,761	21,979,071	23,104,678	21,678,988
Due Banks.....	10,736,602	12,203,614	11,210,760	10,048,355	9,885,308
RESOURCES.					
	Jan. 1, 1843.	Nov. 1, 1843.	Nov. 1, 1844.	Nov. 1, 1845.	Nov. 1, 1846.
	85 banks.	85 bks. 2 brchs.	83 bks. 2 brchs.	81 bks. 2 brchs.	80 bks. 2 brchs.
Loans and discounts.....	\$44,276,546	\$51,711,666	\$57,285,160	\$57,734,989	\$54,938,836
Stocks.....	4,843,320	6,055,938	4,170,935	4,227,191	3,727,186
Specie.....	6,738,389	9,953,270	6,978,055	6,856,718	6,340,513
Bank notes.....	3,890,677	3,537,600	1,971,208	1,897,991	1,891,514
Cash items.....	2,248,202	2,526,158	4,511,316	4,469,853	5,640,583
Due from banks.....	3,726,370	8,477,399	7,173,523	7,927,610	7,419,629

INCORPORATED BANKS OF NEW YORK.

We give below an aggregate statement of 80 incorporated banks and 2 branches, on the 1st November, 1846:—

RESOURCES.		LIABILITIES.	
Loans and discounts.....	\$54,933,836	Capital.....	\$30,241,460
Real estate.....	3,123,463	Profits.....	4,129,357
Bonds and mortgages.....	873,508	Circulation.....	16,033,125
Stocks and promissory notes...	3,727,186	Due treasurer of the State....	502,814
Bank fund.....	169,234	Due canal fund.....	398,080
Loss and expense account....	170,548	Due depositors on demand....	21,678,988
Overdrafts.....	112,833	Due individuals.....	433,838
Specie.....	6,340,513	Due banks.....	9,885,308
Cash items.....	5,640,583	Due treasurer of United States	756,777
Bills of solvent banks.....	1,891,514	Amount not included in above	356,413
Bills of suspended banks.....	7,948		
Due banks.....	7,419,629		\$84,416,160
	\$84,416,160		

FREE BANKS OF NEW YORK.

The following is an aggregate statement of 70 free banks on the 1st November, 1846:—

RESOURCES.		LIABILITIES.	
Loans and discounts.....	\$17,363,144	Capital.....	\$12,783,198
Real estate.....	519,243	Profits.....	1,368,865
Bonds and mortgages.....	1,910,504	Circulation.....	6,235,397
Stocks and promissory notes..	7,499,581	Due treasurer of the State....	167,015
Loss and expense account....	109,072	Due canal fund.....	183,657
Overdrafts.....	38,747	Due depositors on demand....	8,950,208
Specie.....	1,707,871	Due individuals.....	367,554
Cash items.....	2,146,116	Due banks.....	3,093,156
Bills of solvent banks.....	529,555	Due treasurer of United States	341,553
Bills of suspended banks.....	2,057	Amount not included in above	234,293
Due banks.....	1,893,006		
	\$33,724,896		\$33,724,896

DEBT OF THE STATE OF NEW YORK.

CONDITION AND PROGRESS OF THE STATE DEBT, FROM 1837 TO 1846.

The following statement, derived from the annual report of A. C. Flagg, Esq., the comptroller of the State of New York, shows the character, condition, and progress of the State debt for the last ten years. The first column shows the amount of State stock issued and loaned to railroad and canal corporations. The second column, the sum borrowed for the ordinary support of the government, including the stock issued to John Jacob Astor. The third column shows the amount of unredeemed stock issued on account of the several canals; and the fourth, the total of the whole debt. The debts are given as they appear in the annual reports of the 30th of September of each year

Years.	1. Contingent debt.	2. Gen. Fund debt.	3. Canal debt.	4. Agg. State debt.
1837.....	\$810,000	\$978,032	\$6,166,082	\$7,954,114
1838.....	1,497,700	1,148,032	9,308,120	11,953,852
1839.....	1,847,700	1,392,217	10,785,820	14,025,738
1840.....	2,845,700	1,412,961	14,126,647	18,385,308
1841.....	4,235,700	1,418,878	16,396,374	21,960,952
1842.....	1,720,000	5,559,805	19,574,392	26,854,197
1843.....	1,720,000	5,423,415	20,392,324	27,535,739
1844.....	1,720,000	5,634,507	20,713,905	28,068,413
1845.....	1,713,000	5,885,549	19,690,020	27,288,560
1846.....	1,713,000	5,992,840	17,028,240	24,734,080

The preceding statement would seem to show that the contingent debt reached its highest point on the 30th of September, 1841; this, however, is not so. Between the 30th of September of that year, and the 7th of February, 1842, stock was issued and loaned to the New York and Erie Railroad, to the amount of \$900,000, and to the Schenectady and Troy Railroad, \$100,000, being a total of one million, and making the aggregate amount of the contingent debt, on the 7th of February, 1842, \$5,235,700. The last hundred thousand dollars of stock was issued to the Erie Railroad Company, on the 29th of January, 1842, and on the 12th of March following, the president of the company informed Gov. Seward that the company had made no provision for the payment of the April interest on any of the State stock issued to said company, then amounting to \$3,000,000. This letter was communicated to the Legislature by Gov. Seward. By this failure of the Erie Railroad Company, and the previous failures of the Ithaca and Oswego, and the Catskill and Canajoharie companies, the sum of \$3,515,700 was transferred from the column of contingent liabilities, to a direct debt chargeable on the treasury. This explanation accounts for the great changes in the general fund and contingent debts, from 1841 to 1842.

The canal debt, in the preceding statement, appears to have reached its highest point at the close of the fiscal year in 1844, when it stood at \$20,713,905. The canal debt, on the 7th of February, 1842, was given at \$18,656,011.72, which embraced \$600,000 to pay arrearages to contractors. Subsequent payments show that the sum then estimated for arrearages was greatly underrated. Instead of \$600,000, there has actually been paid, from the 7th of February, 1842, to the 13th of June, 1846, the following sums:—

For arrearages to contractors, engineers, &c.....	\$2,649,487.35
For land damages.....	473,520.74
	<hr/>
	\$3,175,008.09

THE DEBT AND FINANCES OF THE STATE OF MARYLAND.

The State realized from taxation and other sources, last year, \$898,619 in addition to cash on hand at the commencement of the year; while the whole annual interest upon her debt is \$651,821, and the ordinary expenses of the State less than \$200,000. The receipts of the State from direct taxes, stamps, and other sources, are largely increasing, and it is difficult to imagine any well-grounded objection to the process of resumption during the present year.

PUBLIC DEBT OF MARYLAND, DECEMBER 1, 1846.

For construction of State Tobacco Warehouses in Baltimore.....	\$85,000 00
For the construction of the Maryland Penitentiary.....	97,947 30
For the Washington Monument, Baltimore.....	3,000 00
For account of the Baltimore and Ohio Railroad Company.....	3,697,000 00
For account of Baltimore and Washington Railroad Company.....	500,000 00
For account of the Chesapeake and Ohio Canal Company.....	7,194,666 67
For construction of the Baltimore and Susquehanna Railroad.....	2,232,045 29
For construction of the Annapolis and Elkridge Railroad.....	219,724 45
For construction of the Susquehanna and Tide-Water Canals.....	1,000,000 00
For construction of the Eastern Shore Railroad.....	152,401 27
For Medical Department of Baltimore University.....	30,000 00

\$15,211,784 98

RECAPITULATION.

Currency, 6 per cent bonds.....	\$3,932,306 44
“ 5 “ “	1,831,811 87
Sterling, 5 “ “	8,857,666 67
Currency, 4½ “ “	100,000 00
“ 3 “ “	500,000 00

Total.....

\$15,211,784 98

Of this amount there is held by the Baltimore and Ohio Railroad Company, and not negotiated, in 5 per cent sterling bonds, issued in 1838.....	\$3,200,000
Held by the Treasurer of the Sinking Fund, (as per preceding statements)...	1,496,473
Actual Funded Debt of the State.....	10,515,311

Total.....	\$15,211,784
Official tables show that the <i>entire</i> funded debt of the State is	\$15,211,784
Of which there is held by the Baltimore and Ohio Railroad Company, <i>not negotiated</i> , and will probably never come against the State.....	\$3,200,000
And State bonds held by the Treasurer of the State's Sinking Fund.....	1,496,473
	<hr/> 4,696,473

Leaving an actual funded debt of..... \$10,515,311

CONDITION OF THE BANKS OF MASSACHUSETTS.

We are indebted to the Hon. John G. Palfrey of Massachusetts, for the "Abstract exhibiting the condition of the banks in Massachusetts, on the first Saturday in October, 1846, prepared from official returns, by John G. Palfrey, Secretary of the Commonwealth." It has just been published for the use of the Legislature of that State, and covers fifty-eight pages. We give below the aggregate condition of all the banks except four, from which returns had not been received at the time the report was made up.

DUE FROM THE BANKS.

	25 banks in Boston.	80 out of Boston.	Total—105.
Capital stock paid in.....	\$18,180,000 00	\$12,980,000 00	\$31,160,000 00
Bills in circulation of \$5 and upwards.....	5,677,668 00	6,651,717 00	12,329,385 00
Bills in circulation less than \$5.....	696,018 00	1,566,511 50	2,262,529 50
Nett profits on hand.....	1,474,694 72	1,029,441 45	2,504,136 17
Balances due to other Banks.....	5,072,005 48	213,010 19	5,285,015 67
Cash deposited.....	6,806,374 51	2,653,001 41	9,459,375 92
Cash deposited bearing interest.....	740,237 18	161,034 80	901,271 98
Total amount due from the Banks.....	38,646,997 89	25,254,716 35	63,901,714 24

RESOURCES OF THE BANKS.

	25 banks in Boston.	80 out of Boston.	Total—105.
Gold, silver, and other coined metals...	\$2,437,072 39	\$617,683 29	\$3,054,755 68
Real Estate.....	719,582 87	378,418 10	1,098,000 97
Bills of other banks in this State.....	2,394,802 78	240,256 38	2,635,059 16
Bills of other banks elsewhere.....	176,236 00	43,459 55	219,695 55
Balances due from other banks.....	3,104,657 23	2,463,431 59	5,568,088 82
Amount of all debts due.....	29,814,646 62	21,511,467 44	51,326,114 06
Total amount of the resources.....	38,646,997 89	25,254,716 35	63,901,714 24
Rate, amount, and date of dividends, since the last annual returns.....	1,163,500 00	692,790 00	1,856,290 00
Reserved profits at time of last dividend.....	1,151,642 10	655,561 65	1,807,203 75
Debts due each bank, secured by stock.....	396,075 85	345,460 69	741,536 54
Debts due and unpaid, (doubtful).....	74,266 76	188,176 39	262,443 15

AGGREGATE DIVIDENDS.

Banks in Boston,	for the year, a fraction less than 6.4 per cent.	
" " in April,	" " 3.25 "	
" " in October,	" over 3.15 "	
" out of Boston, for the year,	" less than 5.34 "	
" " in April,	" over 3.21 "	
" " in October,	" " 2.12 "	
All the Banks, for the year,	" " 5.95 "	
" " in April,	" " 3.23 "	
" " in October,	" " 2.72 "	

Some of the banks did not return dividends in October, 1846, although they may have made them.

CONDITION OF THE SAVINGS BANKS OF MASSACHUSETTS.

From the report of the Secretary of the Commonwealth of Massachusetts, we derive the following statement of the aggregate condition of thirty-eight Savings Banks in Massachusetts, on the last Saturday of October, 1846:—

AGGREGATE OF THIRTY-EIGHT SAVINGS BANKS.

Number of depositors.....	62,893	Loans on mortg. of real est. \$3,757,262 80
Amount of deposits.....	\$10,680,933 10	Loans to county or town... 818,041 96
Public funds.....	1,890,535 93	Loans on personal security. 1,930,072 88
Loans on public funds.....	19,500 00	Cash on hand..... 150,728 26
Bank stock.....	1,909,620 72	Rate and amount of divi- } 4½ percent.
Loans on bank stock.....	149,256 50	dend for last year..... { 345,443 10
Deposits in b'ks bear'g int.	94,520 61	Average annual per cent of
Railroad stock.....	14,800 00	dividends of last 5 years 5½ percent.
Loans on railroad stock....	232,538 75	Annual expenses of the in-
Invested in real estate.....	90,884 22	stitutions..... 29,306 69

THE MINT AT LIMA, IN PERU.

The mint is situated in the vicinity of the Plazuela de la Independencia. It was founded in Lima, in the year 1565; in 1572 transferred to Potosi, and in 1683 removed back to Lima. For the space of seventy years this establishment was in the hands of private individuals; but in the year 1753 the Spanish government took the management of it, and erected the building in which it is still located. It is a large and handsome structure, but very defective in its internal arrangement. Until the year 1817, the machinery for casting was worked by mules, ninety-two of those animals being employed daily. Subsequently, under the direction of an Englishman, water-power was introduced, by which expense was diminished and time saved. A few years ago, a French merchant made an arrangement with the government for the use of a complex machine, which he proposed to bring from Europe. The machine arrived, but by an unlucky fatality it proved perfectly useless. For the space of four years repeated attempts were made to work it, but in vain; it fulfilled none of the required conditions. Its faults are manifold, and it reflects but little credit on the person by whom it was contrived. It has cost no less than \$250,000, and has never been of the least use. In the mint of Lima there are annually cast from two to two and a half millions of dollars, which yield a profit of from \$140,000 to \$180,000, out of which are paid the salaries of the persons employed. Under the Spanish government, these salaries amounted annually to \$48,906; now they make, together with other customary outlays, the sum of \$85,105. The value of a mark of silver, in the mint, is 8 dollars 4 reales; that of a mark of gold is 144 dollars 4 reales. The standard worth of the gold is 21 carats; that of the silver 20 grains.*

UNITED STATES TREASURY CIRCULAR.

TREASURY DEPARTMENT, Feb. 4, 1847.

Under the provision of the act of the 6th of August last, establishing the Constitutional Treasury, it is believed proper, and is hereby directed, that on or before the 1st of April next, the balances remaining in any of the banks should be transferred in specie or treasury notes, and deposited with the treasurer of the United States, the nearest assistant treasurer, treasurer of the mint, or branch mint, as the case may be. By the provisions of the 19th section of this law, no disbursement can be made after the 1st of April next, except in specie or treasury notes; and it would seem proper that, after that period, the public moneys should no longer remain, in whole or in part, in any of the banks. As the balances still remaining in the banks have been reduced to an inconsiderable sum, no inconvenience can be produced by this order.

R. J. WALKER, Secretary of the Treasury.

* Travels in Peru, during the years 1838-1842, by Dr. J. J. Von Tschudi. New York: Wiley & Putnam.

THE ORIGIN OF THE DOLLAR MARK.

The origin of (\$) this mark seems to be exciting considerable interest throughout the country, and there is of course much diversity of opinion as to its origin. Beverly Tucker has written a letter to the editors of the "Southern Standard," in which he gives the following as the most rational account that he has ever heard of the \$ mark:—

"The Straits of Gibraltar, called of old 'the Pillars of Hercules,' were called the *ne plus ultra* of the world. Spain pushed her discoveries to this continent, and when she carried home the wealth that rewarded her enterprise, she coined it into dollars, and stamped them with a triumphant allusion to her great achievement. The pillars they bear are the Pillars of Hercules, and across them is twined a fillet marked with the beautiful words '*plus ultra*'—'farther yet.' The two straight lines are supposed to represent these pillars, and the line that waves across them stands for the fillet; and thus the mark \$ is but a rude picture of this part of the impression."

This, says the Journal of Commerce, sounds very well, but it is not correct. The Journal then proceeds to give the origin of the sign, as follows:—

"The Spanish word for dollar is 'peso;' in the plural, 'pesos.' In old Spanish accounts the word is written in full, and placed before the numerals. Then we find it abbreviated into *Ps.* Afterwards we find the small *p* used, and the letter *s* placed on the lower part of the *p*. Next, that the curved part of the letter *p* is omitted, which gives the present dollar sign \$. The use of two long strokes in the sign, is modern in its use. Thus the sign \$ is an equivalent for the word 'pesos.'"

The New York Express furnishes yet another solution of the question. The Express says:—

"That the dollar mark is only applied, properly, to the United States coin or currency of that name; and originally, in order to distinguish it as such, it was written with the 'U. S.' affixed, as 'U. S. 100 dollars;' and in process of time the whole became abbreviated to 'U. S. 100;' and then by abbreviation to the two letters in one, the S crossing the U, out of which has grown the '\$.'"

We are unable to decide as to the correctness of the several theories advanced, and must, therefore, remain in ignorance, unless some learned member of the American Antiquarian Society sees fit to enlighten us on the subject. We are, however, rather inclined to the decision of Judge Tucker.

REVENUE OF ENGLAND SINCE THE CONQUEST.

A TABULAR STATEMENT OF THE REVENUE OF ENGLAND UNDER EACH REIGN OR ADMINISTRATION FROM 1066 TO 1826, A PERIOD OF 760 YEARS.

	Anno.	£		Anno.	£
William the Conqueror...	1066	400,000	Henry VIII.....	1509	800,040
William Rufus.....	1087	350,000	Edward VI.....	1547	400,000
Henry I.....	1100	300,000	Mary.....	1553	450,000
Stephen.....	1135	250,000	Elizabeth.....	1558	500,000
Henry II.....	1154	200,000	James I.....	1602	600,000
Richard I.....	1189	150,000	Charles I.....	1625	895,819
John.....	1199	100,000	The Commonwealth. }	1648	1,517,247
Henry III.....	1216	80,000	Charles II..... }		1,800,000
Edward I.....	1272	150,000	James II.....	1685	2,001,855
Edward II.....	1307	100,000	William III.....	1688	3,895,205
Edward III.....	1327	154,140	Queen Anne (at Union)	1706	5,691,803
Richard II.....	1377	130,000	George I.....	1714	6,762,643
Henry IV.....	1399	100,000	George II.....	1727	8,522,540
Henry V.....	1413	76,643	George III. (1778).	1760	15,272,971
Henry VI.....	1422	64,976	".....	1800	36,728,000
Edward IV.....	1460		".....	1815*	71,153,142
Edward V.....	1483	100,000	George IV. (averaging). }	1820	58,000,000
Richard III.....	1483		".....	1826	
Henry VII.....	1485	400,000			

* War.

UNITED STATES BRANCH MINT OF NEW ORLEANS.

The following are statistics of the amount of moneys coined in the above establishment for the years 1845 and 1846:—

1845.		1846.	
Eagles,.....	47,500	Eagles,.....	84,780
Half eagles,.....	41,000	Half eagles,.....	58,000
Half dollars,.....	2,094,000	Quarter eagles,.....	60,000
Dimes,.....	230,000	Dollars,.....	59,000
		Half dollars,.....	2,304,000
Value of gold,.....	\$680,000	Value of gold,.....	\$1,272,800
“ silver,.....	1,070,000	“ silver,.....	1,211,000
Total,.....	\$1,750,000	Total,.....	\$2,483,800

The above statement shows an increase of \$733,800, during 1846, over the amount coined in 1845.

TREASURY NOTES CONVERTED INTO UNITED STATES STOCK.

The annexed, is the latest order from the Treasury Department, in relation to Treasury notes:—

TREASURY DEPARTMENT, Feb. 15, 1847.

Deposits of Treasury notes for conversion into stock, bearing interest at 6 per cent per annum, and redeemable after the expiration of twenty years, under 14th section of the act of Congress, approved January 28, 1847, may be made with the Treasurer, and the several assistant Treasurers of the United States, the Treasurer of the mint at Philadelphia, and of the branch mint at New Orleans, and with the collector of the customs at Baltimore, Maryland.

In receiving Treasury notes in deposit for such conversion, these officers will give each depositor a certificate of such deposit, stating the principal of such notes, for which stock will be issued. These certificates of deposit will be forwarded to the Register of the Treasury by the depositor, with an indication of the denomination of stock certificates he desires thereon. Interest will be borne on the stock, from the date of such deposit.

The interest due upon the Treasury notes, so deposited, will be settled by the accounting officers, and the amount remitted by draft, in the usual form, to the depositor.

R. J. WALKER, Secretary of the Treasury.

FINANCES OF LOUISIANA.

The annual report of Gen. Walker, Treasurer of Louisiana, exhibits, that on the 31st of December, 1845, the balance in the treasury was \$352,071 33; received subsequently to the 13th March, \$197,927 77; expenditures during same time, \$111,882 95; leaving a balance on 14th March, 1846, of \$438,116 15. The receipts since that time, to the 31st ultimo, were \$807,599 79; and the expenditures during the same time, \$853,930 33; leaving a balance of \$391,785 61. The surplus of the year 1847 is estimated at \$79,220. The debt “proper” of the State is set down at \$1,846,884 13. This sum includes an amount of nearly half a million of the surplus revenue distributed by the federal government, and upwards of forty thousand dollars balance on appropriations and current expenditures, not claimed. The assets of the State are set down at \$2,364,622 08.

CLEVELAND'S EXCHANGE TABLES.

These tables show the value, in dollars and cents, of any sum of exchange on London, from one penny to five thousand pounds sterling, commencing at par, and progressing by quarters to 12 per cent advance. A new edition, recently published by P. A. Mesier of New York, contains several additional tables of great value to merchants.

COMMERCIAL REGULATIONS.

THE BRITISH CORN LAWS.

AN ACT TO AMEND THE LAWS RELATING TO THE IMPORTATION OF CORN.

By this Act it is declared that from and after the passing of this Act, in lieu of the duties now payable upon the entry for home consumption in the United Kingdom, and upon the importation into the Isle of Man, of corn, grain, meal, and flour, there shall be levied and paid unto her majesty, her heirs, and successors, on all corn, grain, meal, and flour already or hereafter to be imported into the United Kingdom or the Isle of Man from parts beyond the seas, and entered for home consumption, after the passing of this Act, the duties set forth in the schedule to this Act annexed, until February 1, 1849; and on, from and after the said February 1, 1849, the following duties, namely:—

Upon all wheat, barley, bear or bigg, oats, rye, peas, and beans—for every quarter one shilling, and so in proportion for a less quantity.

Upon all wheat-meal and flour, barley-meal, oat-meal, rye-meal and flour, pea-meal, and bean-meal—for every cwt. four-pence halfpenny; and so in proportion for a less quantity.

By § 2 the several duties hereby imposed, and leviable in the United Kingdom, are to be levied, collected, paid, and applied as under the previous acts, as are also (§ 3) the duties leviable in the Isle of Man. The average prices, (§ 4,) both weekly and aggregate, of all British corn, shall continue to be made up, computed, and published, and the certificates of the aggregate average prices continue to be transmitted, at the times, and in the manner required by the 5 and 6 Vict. c. 14; and the rate and amount of the duties set forth in the schedule to this Act shall be regulated and governed, according to the scale therein, by the aggregate average prices so to be made up, in the same manner as the rate and amount of the duties imposed by the said Act are directed to be regulated and governed. But (§ 5) so much of the said Act as prohibits the importation into the United Kingdom for consumption there of any corn ground, is repealed.

DUTIES UNDER THE CORN IMPORTATION ACT.

If imported from any foreign country:—

Wheat.—Whenever the average price of wheat, made up and published in the manner required by law, shall be for every quarter—

	s.	d.		s.	d.
Under 48s. the duty shall be.....	10	0	51s. and under 52.....	6	0
48s. and under 49.....	9	0	52 " 53.....	5	0
49 " 50.....	8	0	53 and upwards.....	4	0
50 " 51.....	7	0			

Barley, Bigg or Bear.—Whenever the average price of barley, made up and published in the manner prescribed by law, shall be for every quarter—

	s.	d.		s.	d.
Under 26s. the duty shall be.....	5	0	29s. and under 30.....	3	0
26s. and under 27.....	4	6	30 " 31.....	2	6
27 " 28.....	4	0	31 and upwards.....	2	0
28 " 29.....	3	6			

Oats.—Whenever the average price of oats, made up and published in the manner required by law, shall be for every quarter—

	s.	d.		s.	d.
Under 18s. the duty shall be.....	4	0	20s. and under 21.....	2	6
18s. and under 19.....	3	6	21 " 22.....	2	0
19 " 20.....	3	0	22 and upwards.....	1	6

Rye, Peas, and Beans.—For every quarter, a duty equal in amount to the duty payable on a quarter of barley.

Wheat-meal and Flour.—For every barrel, being 196 lbs., a duty equal in amount to the duty payable on 38½ gallons of wheat.

Barley-meal.—For every quantity of 217½ lbs., a duty equal in amount to the duty payable on a quarter of barley.

Oat-meal and Groats.—For every quantity of 181½ lbs., a duty equal in amount to the duty payable on a quarter of oats.

Rye-meal and Flour.—For every barrel, being 196 lbs., a duty equal in amount to the duty payable upon 40 gallons of rye.

Pea-meal and Bean-meal.—For every quantity of 272 lbs., a duty equal in amount to the duty payable on a quarter of peas or beans.

If the produce of, and imported from any British possession out of Europe :—

Wheat, Barley, Bear or Bigg, Oats, Rye, Peas, and Beans, the duty shall be for every quarter, 1s.

Wheat-meal, Barley-meal, Oat-meal, Rye-meal, Pea-meal, and Bean-meal, the duty shall be for every cwt., 4½d.

BRITISH CUSTOMS' DUTIES ON TIMBER, &c.

AN ACT TO ALTER CERTAIN DUTIES OF CUSTOMS.

The first clause repeals the previous act, and the second clause imposes, from and after the 5th of April, 1847, the duties as given in the following schedule :—

Upon timber and wood goods, not otherwise charged, viz :—

	From and after April 5, 1847.	From and after April 5, 1848.
Timber or wood, not being deals, battens, boards, staves, hand- spikes, oars, lathwood, or other timber or wood, sawn, split, or otherwise dressed, except hewn, and not being timber or wood, otherwise charged with duty, the load of 50 cubic feet.	£1 0 0	£0 15
Deals, battens, boards, or other timber or wood, sawn or split, and not otherwise charged with duty, the load of 50 cubic feet...	1 6 0	1 0 0
Staves, if exceeding 72 inches in length, 7 inches in breadth, or 3½ inches in thickness, the load of 50 cubic feet...	1 3 0	0 18 0
Firewood, the fathom of 216 cubic feet...	0 8 0	0 6 0
Handspikes, not exceeding 7 feet in length, the 120...	0 16 0	0 12 0
Exceeding 7 feet in length, the 120...	1 12 0	1 4 0
Knees, under 5 inches square...	0 8 0	0 6 0
" 5 inches and under 8 inches square, the 120...	1 12 0	1 4 0
Lathwood, the fathom of 216 cubic feet...	1 12 0	1 4 0
Oars, the 120...	6 0 0	4 10 0
Spars, or Poles, under 22 feet in length, and under 4 inches in diameter, the 120...	0 16 0	0 12 0
22 feet in length and upwards, and under 4 inches in diam- eter, the 120...	1 12 0	1 4 0
of all lengths, 4 inches and under 6 inches in diameter, the 120	3 4 0	2 8 0
Spokes for wheels, not exceeding 2 feet in length, the 1,000.....	1 12 0	1 4 0
Exceeding 2 feet in length, the 1,000.....	3 4 0	2 8 0

Wood, planed, or otherwise dressed or prepared for use, and not particularly enumerated, nor otherwise charged with duty, 6d. per foot of cubic contents, and further for every £100 value, £10, from and after April 5, 1847; and 4d. per foot of cubic contents, and further for every £100 value, £10, from and after April 5, 1848.

Or, in lieu of the duties imposed upon wood by the load, according to the cubic content, the importer may have the option, at the time of passing the first entry, of entering battens, batten ends, boards, deals, deal ends, and plank, by tale, if of or from foreign countries, according to the following dimensions, from and after April 5, 1847, viz :—

Battens and batten ends, not above 7 inches in width, the 120—

	Not above 1½ in. in thickness.	Above 1½, not above 2½ in.
Not above 6 feet in length.....	£1 4 8	£2 9 3
Above 6 and not above 9 feet long.....	1 16 11	3 13 10
" 9 " 12 "	2 9 3	4 18 6
" 12 " 15 "	3 1 7	6 3 2
" 15 " 18 "	3 13 10	7 7 8
" 18 " 21 "	4 6 2	8 12 4

Boards, deals, deal ends, and plank, not above 9½ inches in width, the 120—

				Not above 1½ in. in thickness.	Above 1½, not above 3½ in.
Not above 6 feet long.....				£1 19 6	£3 19 0
Above 6 and not above 9 feet long.....				2 19 3	5 18 6
“ 9 “ 12 “				3 19 0	7 18 0
“ 12 “ 15 “				4 18 10	9 17 8
“ 15 “ 18 “				5 18 7	11 17 2
“ 18 “ 21 “				6 18 5	13 16 8

Above 9½ inches, and not above 11½ in width, the 120—

Not above 6 feet long.....				£2 7 10	£4 15 8
Above 6 and not above 9 feet long.....				3 11 8	7 3 4
“ 9 “ 12 “				4 15 7	9 11 2
“ 12 “ 15 “				5 19 7	11 19 2
“ 15 “ 18 “				7 3 6	14 7 0
“ 18 “ 21 “				8 7 6	16 15 0

In lieu of the duties of customs now chargeable on the articles hereinafter next mentioned, imported into the United Kingdom, the following duties shall be charged from and after June 1, 1846, that is to say:—

Seeds, per cwt., viz.—	s. d.		s. d.
Canary.....	5 0	Of and from a British Possession	2 6
Caraway.....	5 0	“ “ “	2 6
Carrot.....	5 0	“ “ “	2 6
Clover.....	5 0	“ “ “	2 6
Leek.....	5 0	“ “ “	2 6
Mustard.....	1 3	“ “ “	0 7½
Onion.....	5 0	“ “ “	2 6
All other seeds not particularly enumerated or described, or otherwise charged			
with duty, for every £100 value.....			£5 0 0
Of and from a British Possession, for every £100 value.....			2 10 0

ARTICLES ADMITTED FREE OF DUTY.

No duties of customs shall be chargeable upon the goods, wares, and merchandise hereinafter next mentioned, that is to say:—

Animals, living, viz.—Asses, Goats, Kids, Oxen and Bulls, Cows, Calves, Horses, Mares, Geldings, Colts, Foals, Mules, Sheep, Lambs, Swine and Hogs, Pigs sucking.

Bacon. Beef, fresh or slightly salted; Beef, salted, not being corned Beef. Bottles, of earth and stone, empty.

Cast of Busts, Statues, or Figures. Caviare. Cherry Wood, being furniture wood. Cranberries. Cotton Manufactures, not being articles wholly or in part made up, not otherwise charged with duty.

Enamel. Gelatine. Glue.

Hay. Hides, or pieces thereof, tawed, curried, varnished, japanned, enamelled; Muscovy or Russia Hides, or pieces thereof, tanned, colored, shaved, or otherwise dressed, and Hides or pieces thereof in any way dressed, not otherwise enumerated.

Ink for printers. Inkle, wrought.

Lamp Black. Linen, viz., plain Linens and Diaper, whether chequered or striped with dye yarn or not, and manufactures of Linen, or of Linen mixed with cotton, or with wool, not particularly enumerated, or otherwise charged with duty, not being articles wholly or in part made up.

Magna Græcia Ware. Manuscripts. Maps and Charts, or parts thereof, plain or colored. Mattresses. Meat, salted or fresh, not otherwise described. Medals of any sort.

Palmetto Thatch Manufactures. Parchment. Partridge Wood, being furniture wood.

Pens. Plantains. Potatoes. Pork, fresh; salted, not hams. Purple Wood, being furniture wood.

Silk, Thrown, dyed, viz., Singles and Tram, Organzine or Crape Silk.

Telescopes. Thread not otherwise enumerated or described.

Woolens, viz., Manufactures of Wool, not being goat's wool, or of wool mixed with cotton, not particularly enumerated or described, not otherwise charged with duty, not being articles wholly or in part made up.

Vegetables, all, not otherwise enumerated or described. Vellum.

ADDITIONAL ARTICLES FREE BY 9 AND 10 VICT., c. 102.

Mill Stones, rough, shaped, or hewn. Burr Stones, rough, shaped, or hewn. Quern Stones, rough, shaped, or hewn. Dog Stones, rough, shaped, or hewn.

Raw Worsted Yarn, not dyed nor colored, and not being fit or proper for embroidering or other fancy purposes.

Dunnage Mats, not being of greater value than 10s. the 100.

EAST INDIES.—FREE PORTS.

The Singapore Free Press of October 7th, contains the proclamation of the Governor-General of Netherlands India, declaring Macassar a free port. After a preamble, declaring the desire of the Governor to "promote the trade and industry of the manifold islands and possessions of Netherlands India," the Governor declares as follows:—

1st. That from and after the 1st of January, 1847, the town of *Macassar* shall be a free port, where goods of every description whatsoever, and without reference to the flag, may be freely imported and exported without payment of duties, either on the cargo, or of tonnage, harbor, or anchorage dues on the ships, and without the traders being subject to any formalities on the score of import or export duties.

2d. That, therefore, the regulations bearing on the importation, the sale, and possession of fire-arms and gunpowder, fixed by the decree of 8th August, 1828, No. 26, for the harbor and town of Macassar, are abrogated, and consequently the free admission and exportation of munitions of war at the place is granted by these presents.

3d. That the importation and exportation of opium, at Macassar, will likewise be free, and subject to no restrictive regulations; with the understanding, however, that the traders in opium will have to conform to the local regulations in reference to the opium farm.

4th. That of the Chinese junks which are discharged at Macassar, the tax, imposed by article 20 of the publication of 28th August, 1818, and the resolution of 4th October, 1819, No. 20, will be no longer claimed, nor that on behalf of the Chinese hospital, prescribed by resolution of 5th March, 1832, No. 1.

5th. That in the remaining places, situated in the government districts of Macassar, no import or export duties will be levied on goods, imported or exported by native craft, from or to Macassar, while no square-rigged vessels will be admitted at those ports.

6th. That the Governor of Macassar will be at liberty to admit foreigners, and to allow them to establish themselves temporarily at the said place for the purposes of trade; and that no one should pretend ignorance on this score, the present will be published and pasted up wherever it be necessary.

Ordain, &c.

Given at Buitenzorg, 9th September, 1846.

NEW REGULATIONS OF THE FRENCH WEST INDIA ISLANDS.

The following is an epitome of the new regulations in the port of Guadaloupe, and through the whole of the French Islands:—Allows foreign vessels to come to anchor within the harbor and lay 24 working hours, by paying 11 francs (\$2 03.) The pilotage is due if the vessel take a pilot to come in or go out. The vessel must have her manifest ready so as to be delivered up to the customs when required. Under this new law, the wheat flour is 33c., colonial duty, 19c.—total, 52c.

NEW COMMERCIAL REGULATIONS OF CUBA.

A royal order has been issued in Havana, making Indian corn and corn-meal free of duty at the ports of Havana, Matanzas, Cardenas and Mariel, for six months, commencing Jan. 16th, 1847. Vessels arriving or departing in ballast, will no longer have to pay mud-machine dues, or for health visits, or for Moro pass. The mud-machine dues for foreign vessels, are 1½ rials per ton; health visits, ½ of a rial per ton.

NAUTICAL INTELLIGENCE.

LIGHT-TOWER AT BRUSTERORT.

From the 15th December, 1846, a light will be placed on the light-tower which has been erected at Brusterort, instead of the two beacons which have hitherto been lighted. The tower stands in $50^{\circ} 57' 50''$ north latitude, and $19^{\circ} 59' 30''$ longitude = 1hr. 19' 58" in time from Greenwich, and is built in octagon form of rough brick. The base of the tower is 107 feet, 2 inches, 8 lines above the medium height of the Baltic; the axis of the light 82 feet above the ground; consequently 189 feet 2 inches, 8 lines above the medium level of the Baltic sea. The light is a Fresnel fire of the second rank, to common view a fixed light, which however is interrupted from 4 to 4 minutes by a brighter glare, which is preceded and followed by a short obscuration. It illumines 5-6 of the horizon from S. W. to S. S. E., and may be seen from on board a small vessel, at 10 feet elevation of the observer above the level of the sea, 5 geographical miles; at 30 feet elevation of the observer, $5\frac{1}{2}$ geographical miles; from the masthead of a large vessel, at 100 feet elevation of the observer above the level of the sea, 7 geographical miles.

ROYAL GOVERNMENT, SECTION OF THE INTERIOR.

Koenigsberg, 14th November, 1846.

HALIFAX.—LIGHT-HOUSE ON BEAVER ISLAND.

A light-house has been recently erected and is now in operation on the south end of the outer Beaver, or William's, Island, to the eastward of Halifax, and is a revolving light, visible $1\frac{1}{2}$ minutes, and dark $\frac{1}{2}$ a minute; the lantern is placed on a square building 70 feet above the level of the sea, and is painted white, with two black balls painted on the seaward side to distinguish it in the day-time.

The following bearings and distances have been taken by order of Admiral Sir F. W. Austen, the naval commander-in-chief on this station, as follows:—

Latitude $44^{\circ} 47' 49''$ N., by meridian altitude of sun; longitude, by chronometer, $62^{\circ} 25' 18''$ W., or $1^{\circ} 12' 30''$ E. of the dock-yard, Halifax. Variation $19^{\circ} 00''$ W.

BEARINGS MAGNETIC.

Sambro Light-house,.....	S. 84 07	W. 54 miles.
Canso Light-house,.....	N. 81 39	E. 70 "
White Islands, south point,.....	N. 88	E. 94 "
Westernmost (dry) Bird Ledge,.....	S. 84	W. 5 "
Harbor Rock,.....	N. 9	W. 3 "
Goose Island Point and Sutherland Island Point, in one,	N. 18	W.

A reef extends from the east end of Beaver Island a considerable distance, so that on entering the bay you should give the light-house a berth of three-quarters of a mile. This harbor is a good one. Inside Beaver Island the anchorage is not very good, but further up the bay there is a good anchorage, by giving the light a berth of half or three-quarters of a mile, and steering N. N. W.

S. CUNARD,
THOS. MAYNARD, } Commissioners of
J. P. MILLER, } Light-houses.

A Fog Bell, worked by machinery, has been erected on the southwest light-house on St. Paul's island, off Cape North.

LANTERN ON THE LIGHT-TOWER OF THUNOE.

The lantern on the light-tower of Thunoe has been heightened one and a half feet, and replaced by an iron lantern, with large glass squares, which since Sept. 10, 1846, has been kept burning during the same hours as all other Danish lights, and is being visible over the whole horizon at the distance of three German miles.

ANTON LIZARDO, SACRIFICOS, AND GREEN ISLAND.

ERROR IN CHARTS.—DIRECTIONS FOR ENTERING THE HARBORS.

The annexed letter from the commander of the United States ship *Princeton*, dated on board U. S. ship *Princeton*, Anton Lizardo, 5th January, 1847, contains important information for navigators coming from the North:—

Sir:—There are a number of vessels coming from the North to this anchorage, and if they run by the charts they must go on shore. The chart of Sir John Philliman, of 1824, calls Blanquilla, (forming the entrance to this, one of the best harbors in the world,) an island, when it is a shoal.

Directions for entering Anton Lizardo, Sacrificos, and Green Island, cannot be mistaken. Therefore bring N. W. by N., and steer S. E. by E., (compass bearing,) this will carry you in sight of Blanquilla, a shoal which breaks. When you are two miles from Green Island you can see a bank on the hills on your larboard bow; there are a number of patches, but this is the largest and most southerly—steer for it. As you approach, you will observe the houses and lime-kiln on Anton Lizardo, steer for them, keeping them open on the larboard bow, until you near Blanquilla shoal; as you pass in, keep a cable's length from the light green water, the shoal on your larboard hand. You will be steering about S. E. by E., doubling to E. $\frac{1}{2}$ N., (you will now be one mile from the beach where there is a breaker thence extending from 300 to 400 yards towards Blanquilla,) here your eye and lead are your best guide; do not go in less than 6 or 8 fathoms on the Blanquilla side of the channel. If you shoal your water, steer towards the shore, and you will deepen from 8 to 16 fathoms, and from 16 quick to 8 and 2 fathoms. The channel is half a mile wide at least. As soon as you pass Blanquilla, or as soon as it is on with Salaminidilla, which is the southern and eastern island, you can haul up gradually to the eastward, steering where you please. Blanquilla bears W. $\frac{1}{2}$ N., and Salaminidilla N. $\frac{1}{2}$ N., from this ship; we are in 6 fathoms water, good holding ground, about 1 mile from the island, where at present you will see coal, a small house, etc. Very respectfully yours, etc.

F. ENGLE, Commander.

FLOATING LIGHTS ON THE COAST OF IRELAND.

The Corporation for preserving and improving the port of Dublin have given notice, that on and after the 1st January, 1847, gongs will be substituted for the fog bells at present in use on board their light-ships, viz:—

The light-ship at the north end of the Kish Bank.

The light-ship near the south end of the Arklow Bank.

The light-ship near the Coningbeg Rock (Saltees.)

And after the period above mentioned, whenever the weather may be thick and foggy, so as to require such signal for the safety of shipping, a gong will be sounded on board each of these light-ships, of which masters of vessels navigating the St. George's Channel are requested to take notice.

THE SHIPPING OF FIVE AMERICAN STATES.

The Salem Gazette gives the following comparative statistics of the amount of tonnage owned, and the amount built, by the four States that stand highest in the list, for the years 1845 and '46:—

TONNAGE OWNED.					
	1845.	1846.		1845.	1846.
	Tons.	Tons.		Tons.	Tons.
New York,.....	625,875	655,695	Maine,.....	320,059	358,123
Massachusetts,...	524,994	541,520	Louisiana,.....	170,525	181,258
TONNAGE BUILT.					
	1845.	1846.		1845.	1846.
	Tons.	Tons.		Tons.	Tons.
Maine,.....	21,105	49,747	Massachusetts,....	25,961	24,311
New York,.....	29,345	33,253	Pennsylvania,....	25,819	15,784

COMMERCIAL STATISTICS.

AD VALOREM AND SPECIFIC DUTIES IN 1844, 1845, AND 1846.

We give below a statement exhibiting the value of merchandise imported into the United States paying duty, the amount of duty which accrued on the same, and also the rate per centum ad valorem of the said duties on the respective values, during the years 1844, 1845, and 1846, derived from the Treasury Department, Register's Office, Dec. 7, 1846:—

Period of importation.	Value paying duty.	Duties.	Rate per ct. ad valorem.
1844.—Imported ad valorem goods.....	\$52,315,291	\$14,449,348 03	27.62
Imported specific articles.....	31,352,863	14,531,208 77	46.34
Total ad valorem and specific..	\$83,668,154	\$28,980,556 80	34.64
1845.—Imported ad valorem goods.....	\$60,191,862	\$16,278,117 22	27.04
Imported specific articles.....	34,914,862	14,540,737 65	41.64
Total ad valorem and specific..	\$95,106,724	\$30,818,854 87	32.40
1846.—Imported ad valorem goods.....	\$60,660,453	\$16,521,117 12	27.23
Imported specific articles.....	36,263,605	13,859,582 18	38.21
Total ad valorem and specific..	\$96,924,058	\$30,378,699 30	31.34
1844.—Excess of specific duties over ad valorem.....		\$81,860 74	
1845.—Excess of ad valorem duties over specific.....		\$1,737,379 57	
1846.—Excess of ad valorem duties over specific.....		2,663,534 94	
Excess in 1845 and 1846.....		4,400,914 51	
Deduct excess of specific duties in 1844.....		81,860 74	
Excess in three years of ad valorem duties over the specific.....		\$4,320,053 77	

FOREIGN AND COASTWISE EXPORTS OF NEW ORLEANS.

The books of the custom-house at New Orleans, furnish the following statement of exports coastwise, and to foreign countries, from that port, in each month of 1846, as compared with the same time in 1845:—

VALUE OF EXPORTS, 1846.		VALUE OF EXPORTS, 1845.	
	Coastwise.	Foreign.	Coastwise.
January,.....	\$2,753,227 58	\$2,230,444	\$1,813,290 54
February,.....	4,098,438 10	3,231,883	3,989,422 51
March,.....	4,257,781 96	3,875,974	2,588,658 00
April,.....	3,312,544 30	2,762,392	2,778,268 13
May,.....	2,391,860 37	4,145,943	1,456,033 67
June,.....	1,298,421 85	3,586,827	928,418 17
July,.....	1,119,458 11	3,418,940	767,220 40
August,.....	904,416 10	1,675,012	527,130 20
September,.....	454,206 25	581,178	505,665 00
October,.....	603,798 05	1,226,408	811,002 67
November,.....	1,058,071 21	1,906,896	1,615,976 55
December,.....	2,438,601 60	4,066,685	1,368,647 00
Total,.....	\$24,790,825 08	\$32,708,582	\$19,149,741 84
			\$28,211,569

Total amount of exports in 1846, \$57,499,407 08; in 1845, \$47,361,310 84; showing an increase, in 1846, of \$10,138,096 24.

WHALE FISHERY OF THE UNITED STATES, IN 1846.

We publish below, as usual, the annual statement of the whale fishery of the United States, made up at New Bedford, and originally published in the Whaler's Shipping List. The imports of sperm and whale oils, and whalebone, into the United States, for 1846, made up from the gauger's report of the different cargoes, except 367 barrels sperm and 20 whale oil, which is put down as reported, and actual weight of whalebone, except import per brigs Bull and Chenamus, and bark Alioth, have been as follows:—

IMPORTS OF SPERM AND WHALE OIL, AND WHALEBONE, INTO THE UNITED STATES, IN 200 SHIPS, BARKS, ETC., DURING THE YEAR 1846.

Ports.	Ships and barks.	Brigs, scho. &c.	Bbls. sperm oil.	Bbls. whale oil.	Lbs. whaleb's.
New Bedford,.....	59	1	38,380	80,812	456,900
Do. in Merchantmen,.....	1	1	300	215	256,025
Fairhaven,.....	12	0	12,049	15,475	101,449
Mattapoisett,.....	4	3	1,809	1,517	24,000
Sippican,.....	1	1	374	1,515	6,600
Wareham,.....	0	1	672	.....	.....
Westport,.....	5	2	2,918	71	.....
Dist. of New Bedford,.....	82	11	56,512	99,605	844,974
Holmes' Hole,.....	1	0	1,062	1,020	9,400
Edgartown,.....	1	1	731	2,010	19,000
Nantucket,.....	10	3	15,151	1,731	14,000
Do. in Merchantmen,.....	1	0	1,828	.....	.....
Provincetown,.....	1	17	4,672	282	.....
Plymouth,.....	2	1	2,455	8	.....
Boston,.....	1	1	533	60	.....
Do. in Merchantmen,.....	1	3	2,040	.....	40,000
Fall River,.....	2	0	369	4,070	24,266
Somerset,.....	1	0	109	18	.....
Bristol,.....	2	1	977	3,601	14,600
Warren,.....	6	0	2,324	6,633	20,200
Providence,.....	2	0	140	5,096	34,000
Newport,.....	3	1	1,584	230	1,200
Stonington,.....	5	0	1,055	9,169	71,900
Mystic,.....	2	0	78	4,130	40,400
New London,.....	13	3	1,307	27,441	183,450
Bridgeport,.....	1	0	130	2,500	7,500
Sag Harbor,.....	14	0	1,076	29,295	138,832
Do. bro't on freight,.....	...	...	154	.....	66,186
Greenport,.....	2	0	120	3,106	30,574
Cold Spring,.....	3	0	366	7,125	36,457
N. York in Merchantmen,.....	3	0	448	363	680,000
Total,.....	159	41	95,221	207,493	2,276,939

AVERAGE VOYAGES MADE BY SPERM AND RIGHT WHALERS, IN EACH YEAR, FROM 1842 TO 1846, INCLUSIVE, WITH AVERAGE TIME ABSENT AND QUANTITY OF OILS BROUGHT HOME.

In 1842, 55 sperm whalers arrived, average absence 41 months, 8 days, with average cargoes of.....	Sperm. 1,793	Whale. 135
In 1842, 74 two season right whalers arrived, average time absent 24½ months, with average cargoes of.....	422	1,722
In 1842, 18 one season right whalers arrived, average time absent 10½ months, with average cargoes of.....	122	1,602
In 1842, 65 Atlantic sperm whalers arrived, average time absent 13 months, 28 days, with average cargoes of.....	280	12

ARRIVALS IN 1843.

70 sperm whalers, average absence 41 m. 13 d., average cargo,.....	1,641	124
90 2 season rt. do. " 25 10 "	311	1,937
15 1 " " 11 28 "	92	1,398
55 Atlantic sp. whalers " 14 20 "	285	25

ARRIVALS IN 1844.

69 sperm whalers, average absence	43 m. 00 d., average cargo,.....	1,419	293
112 2 seas. rt. do. "	25 09 "	248	2,050
7 1 " " " " "	11 14 "	69	1,176
42 Atlantic sp. whalers "	12 00 "	248	38

ARRIVALS IN 1845.

91 sperm whalers, average absence	48 21 "	1,291	387
101 2 seas. rt. do. "	24 00 "	196	2,180
8 1 " " " " "	12 04 "	55	796
43 Atlantic sp. whalers "	13 07 "	238	76

ARRIVALS IN 1846.

42 sperm whalers, average absence	41 06 "	1,350	280
94 2 season rt. do. "	30 02 "	225	2,034
1 1 " " " " "	12 02 " .....	.....	2,005
48 Atlantic sp. whalers "	14 07 "	250	14

Total.—Whole number of vessels employed in the whale fishery, January 1, 1847, 670 ships and barks, 31 brigs, 20 schrs., 1 sloop,..... 230,218 tons.
 Whole number employed in the fishery, January 1, 1846, 678 ships and barks, 35 brigs, 21 schrs., and 1 sloop,..... 237,189 "
 Showing a diminution in the whaling fleet of 8 ships, 4 brigs, and 1 schr., in 1846, amounting to..... 2,971 "

Oil and bone shipped home from outward bound, and wrecked and condemned whalers, and brought home by whalers that had not completed their voyages, returned in consequence of some disaster, 4,953 bbls. sperm, and 1,705 bbls. whale oil, and 976,000 lbs. whalebone.

IMPORTS OF SPERM AND WHALE OIL,

From January 1st, 1838, to January 1st, 1844, and Oil and Bone, from January 14th, 1844, to January 1st, 1847.

	Sperm.	Whale.	Bone.		Sperm.	Whale.	Bone.
1838.....	132,356	226,552	.....	1843.....	166,985	206,727	.....
1839.....	142,836	229,783	.....	1844.....	139,594	262,047	2,532,537
1840.....	157,791	207,908	.....	1845.....	157,917	272,730	3,167,142
1841.....	159,304	207,348	.....	1846.....	95,217	207,463	2,276,939
1842.....	165,637	161,041	.....			

STATEMENT OF SPERM AND WHALE OIL, AND WHALEBONE ON HAND, JANUARY 1, 1847.

	Sperm.	Whale.	Bone.		Sperm.	Whale.	Bone.
New Bedford,.....	2,459	4,300	117,800	Newport,.....	191	.....	.....
Fairhaven,.....	1,335	600	5,000	Sag Harbor,.....	.....	125	.....
Westport,.....	1,400	.....	.....	New York,.....	.....	.....	.....
Mattapoisett,.....	54	.....	.....		
Nantucket,.....	7,500	700	.....	Total,.....	14,614	7,775	122,800
Warren,.....	1,675	2,050	.....			

THE AMERICAN WHALE FISHERY.

Henry P. Havens, Esq., of New London, has furnished us with the following additional particulars to the article which appeared in the Merchants' Magazine for January, 1847. They were intended to accompany that article, but were received too late.

The North Pacific Ocean, from coasts of America and Kamtschatka, lat. 35° to 60°, called northwest coast, is the "ground" where most of the right whale oil taken by American ships is procured. The large size and abundance of whales in this region have attracted a large proportion of the vessels engaged in this department of the business; and it is estimated that 315 ships from the United States have fished there during the present year. The whales are taken here during the warm months, say from 1st May to 1st October.

It is believed that the North Pacific was first visited for right whales in 1839. The following table will show the success of the vessels cruising on that ground since that time:—

1839,.....	2 ships, averag'g	1,400 barrels, is.....	2,800 barrels.
1840,.....	3	" 587 "	1,760 "
1841,.....	20	" 1,412 "	28,200 "
1842,.....	29	" 1,627 "	47,200 "
1843,.....	108	" 1,349 "	146,800 "
1844,.....	170	" 1,528 "	259,570 "
1845,.....	263	" 953 "	250,600 "

It will be seen above that although the quantity of oil taken last year (1845,) was nearly as large as any year previously, yet the average fell off from 1844, 37 per cent. There being a large number of vessels fishing on the northwest the present year, a still smaller average is feared.

Nantucket has probably undergone fewer changes, as far as the extent of its interest in the whale fishery is concerned, for the past twenty-five years, than any other place.

In 1820, 72 ships were owned at Nantucket; 1829, 60; 1834, 71; 1839, 77; 1844, 77; 1846, 72; whereas, in New Bedford, there were in 1828, 67 ships; 1846, 252; and in New London in 1820, 1 ship; 1846, 69.

Notice has lately appeared in our newspapers, taken from English files, that the South Sea whale fishery was about to be revived in Great Britain. The Americans will probably have little to fear from the rivalry of the English, as the southern fishery almost entirely run out in England with a prohibitory duty of £26 10s. per tun on whale oil imported into Great Britain; and after 1st January, 1847, it will go in duty free.

EXPORTS OF THE UNITED STATES.

A COMPARATIVE VIEW OF THE EXPORT TRADE OF THE NORTHERN AND SOUTHERN STATES.

The following statement is copied from a correspondent of the Journal of Commerce:—

"From the statistics of our export trade for the last few years, we perceive that it is assuming altogether a new aspect. Heretofore our principal exports have consisted of cotton, tobacco, and rice,—all the productions of the Southern States. Within the last few years, the exports of the manufactures and productions of the North have fast increased. It was not until I had compiled the annexed table, that I could credit the great increase. It appears that of the exports of domestic produce and manufactures for the year 1846, 43 per cent are from the Northern States; that the excess of the exports of the South over the North, in 1845, was \$31,000,000; in 1846, only \$14,000,000; that in 1845, the exports of the South were 66 per cent of the whole; the North, 34 per cent; and in 1846, the South, 57 per cent; the North, 43 per cent.

EXPORTS FOR THE YEARS 1845 AND 1846, CLASSIFIED.

Productions.	1845.	1845.	1846.	1846.
	North.	South.	North.	South.
Sea,.....	\$4,500,000	.....	\$3,400,000	.....
Skins and furs,.....	1,400,000	.....	2,300,000	.....
Forest,.....	3,300,000	\$1,800,000	3,400,000	\$2,000,000
Produce of animals,.....	6,200,000	.....	7,800,000	.....
Vegetable food,.....	6,800,000	3,200,000	15,400,000	4,000,000
Tobacco,.....	.....	8,000,000	.....	9,100,000
Cotton,.....	.....	51,700,000	.....	42,700,000
Manufactures,.....	9,300,000	.....	8,800,000	.....
Lead,.....	340,000	.....	600,000	.....
Wool,.....	.....	.....	200,000	.....
Not enumerated,.....	2,000,000	480,000	2,300,000	500,000
	\$33,940,000	\$65,180,000	\$44,200,000	\$58,300,000
		33,940,000		44,200,000
		\$31,240,000		\$14,100,000

"In the above table we have used round numbers, which is sufficiently accurate for all common purposes. The export of Northern produce in 1846, is much greater than in 1845. If the increase of 1847 exceed that of 1846, as that year exceeded 1845, in all probability the exports of the Northern States will exceed those of the Southern."

COMPARATIVE WEIGHT OF BALES OF COTTON,

AT THE PORTS OF NEW ORLEANS, MOBILE, CHARLESTON AND SAVANNAH.

James E. Saunders, Collector of Customs at Mobile, having been requested by those interested in the cotton trade, to ascertain, with reasonable certainty, the quantity of cotton produced in the year 1845, in pounds—the average weights of bales at each of the ports where the article is received for shipment—and whether any increase or decrease is accruing in that respect this season, (under date, Mobile, January 20th, 1847) addressed a letter of inquiry on these points to the collectors at New Orleans, Charleston and Savannah. To his inquiries, the collectors of those ports made a prompt reply, which, together with records of the office at Mobile, we publish below:—

The books in our custom-house show only the portion of the crop shipped to foreign countries. Using this as a basis of calculation, with the prices current in the hands of every merchant, the results which follow have been obtained:

At New Orleans the average weight of the bales received last year, ending 31st August, 1846, was 450 pounds, and no information of any change this season.

At Mobile it was 489 pounds last season; and so far in this, 484 pounds.

At Charleston last season, and this, 360 pounds.

At Savannah it was 415 pounds last season, (including Upland and Sea Island) and 430 so far in this. The Upland has not increased beyond the average of last season, which was 432 pounds; but the result is due to the small quantity of Sea Island received this season, which does not average much over 300 pounds to the bale.

Table No. I. presents the number, average and aggregate weight of bales received at the southern ports of the United States, (exclusive of Texas,) of the crop of 1845—whole quantity, 905,880,739 pounds. The average weight of the bales in Florida, North Carolina and Virginia, is conjectural.

Table No. II. shows the receipts of the crop of 1846, up to the 8th January instant, an estimate of the total receipts during the season at each port, provided the same proportion be maintained throughout, and the crop amounts to two millions of bales. The quantity in such case would be in the aggregate, 859,880,739 pounds.

Table No. III. shows the deficit from the crop of 1845 in pounds, and in average bales of 440 pounds, should the crop of 1846 be respectively 2,000,000; or 1,900,000; or 1,800,000 bales.

TABLE I.

	Rec'ts—Crop '45.	Av. Weight.	Total Weight.
New Orleans.....	1,040,012	450	468,005,400
Mobile.....	421,966	489	206,341,374
Florida.....	139,880	415	57,635,200
Gulf Ports.....	1,600,858		731,981,974
Georgia.....	184,563	415	76,593,645
South Carolina.....	248,766	360	89,555,760
Virginia.....	12,125	360	4,365,000
North Carolina.....	9,401	360	3,384,360
Atlantic Ports.....	454,855		173,898,765
Gulf Ports.....	1,600,858		731,981,974
All the Ports.....	2,055,713	440	905,880,739

TABLE II.

	Rec'ts to Jan. 8.	Total Receipts.	Average.	Total Weight.
New Orleans.....	324,000	867,250	450	390,262,500
Mobile.....	102,625	284,000	484	137,456,000
Florida.....	21,375	57,000	430	24,510,000
Savannah.....	118,162	316,250	430	135,987,500
Charleston.....	170,953	458,500	360	165,060,000
North Carolina.....	1,081	5,250	....	1,890,000
Virginia.....	4,760	12,750	....	4,590,000
	745,947	2,000,000		859,756,000

If crop be
2,000,000
1,900,000
1,800,000

TABLE III.

Deficit in lbs.
46,124,739
89,112,539
132,100,339

In av'gs bales:
100,128
202,528
300,228

PRICES OF WHEAT, FLOUR, HEMP, AND LEAD,

AT ST. LOUIS, FOR THE LAST THREE YEARS.

The following tables, derived from the St. Louis Price Current, exhibit the comparative monthly prices of four of the leading products of Missouri, in each month of the years 1844, 1845, and 1846:—

	WHEAT.			FLOUR.		
	1846. Cents.	1845. Cents.	1844. Cents.	1846. Dollars.	1845. Dollars.	1844. Dollars.
January,.....	70 a75	68 a70	65 a70	4 37½ a4 50	3 62½ a3 70	3 75 a4 00
February,.....	65 a68	60 a65	65 a70	4 00 a4 12½	3 60 a3 62½	3 75 a4 00
March,.....	63 a66	68 a70	75 a80	3 87½ a4 00	3 60 a3 62½	3 95 a4 12½
April,.....	62½ a65	65 a67	70 a75	3 50 a3 62½	3 45 a3 50	3 70 a3 75
May,.....	63 a65	68 a70	70 a72	2 95 a3 00	3 65 a3 70	3 70 a3 75
June,.....	50 a52	68 a70	60 a62½	3 05 a3 10	3 65 a3 70	3 50 a3 55
July,.....	38 a40	70 a73	50 a56	2 00 a2 25	3 70 a3 75	3 70 a3 75
August,.....	48 a50	50 a53	60 a65	2 50 a2 55	3 45 a3 50	3 75 a4 00
September,.....	50 a53	54 a56	65 a68	2 87½ a3 00	3 00 a3 06½	3 80 a3 90
October,.....	60 a63	62½ a65	60 a62½	3 75 a3 80	3 12½ a3 25	3 87½ a4 00
November,.....	57 a59	75 a80	70 a73	3 80 a3 87½	3 70 a3 75	3 56 a3 60
December,.....	58 a60	85 a90	67 a70	3 75 a3 80	5 75 a6 00	3 75 a4 00

	HEMP.			LEAD.		
	1846. Cents.	1845. Cents.	1844. Cents.	1846. Dollars.	1845. Dollars.	1844. Dollars.
January,.....	\$65a68	\$58a60	\$70a75	\$3 70a3 75	\$3 25a3 30	\$3 00a3 03½
February,.....	58a60	58a60	70a75	3 70a3 75	3 32a3 35	3 00a3 03
March,.....	58a60	58a60	76a80	3 40a3 45	3 10a3 12½	2 85a2 87
April,.....	52a55	62a65	73a75	3 20a3 25	3 08a3 10	2 76a2 78½
May,.....	48a50	68a70	70a73	2 90a2 95	3 00a3 03	2 85a2 87
June,.....	48a50	68a70	60a65	3 30a3 35	2 95a3 00	3 00a3 02
July,.....	46a48	70a75	58a60	3 25a3 30	3 32a3 35	2 90a2 92
August,.....	48a50	68a70	65a70	3 15a3 20	3 25a3 30	2 93a2 95
September,.....	44a46	65a68	70a72	3 25a3 30	3 45a3 47	3 00a3 05
October,.....	46a48	60a65	65a68	3 48a3 50	3 68a3 70	3 10a3 12
November,.....	48a50	65a68	63a65	3 70a3 75	3 80a3 85	3 45a3 50½
December,.....	56a60	62a65	60a62	3 80a3 85	4 00a3 03	3 25a3 37

COMMERCE OF DETROIT, MICHIGAN.

The following is a table of certain articles of export of the Port of Detroit, for a series of years, affording evidence of the rapid growth of that important city:—

	EXPORTS OF DETROIT.				
	1846.	1845.	1844.	1843.	1842.
Wheat,.....bush.	114,397	230,610	112,350	106,180	98,920
Flour,.....bbls.	464,092	225,430	296,170	263,080	180,210
Fish,.....	9,305	6,675	5,850	6,760	11,895
Pork,.....	2,621	954	2,620	3,075	10,466
Ashes,.....cks	5,742	7,560	8,680	9,655	3,650
Wool,.....lbs.	506,143	390,060	235,405	98,950	34,464
Staves,.....M	4,346	1,840	397	612	773
Total value,.....	\$2,495,333	\$2,000,000	\$1,747,000	\$1,587,000	\$1,108,000

The movement in breadstuffs, owing to the failure of the crop, fell off some 37,000 barrels in 1845, as compared with 1844, and was also 3,744 barrels lower than in 1843.

We append the equivalent of flour, and wheat reduced to barrels flour, sent off from Detroit in the above period:—

	1842.	1843.	1844.	1845.	1846.
Bbls. Flour.....	199,994	284,296	318,640	281,552	486,969

The total value of the exports of Michigan is as follows:—

Exported from	Detroit.....	\$2,495,417
"	Monroe.....	800,241
"	St. Joseph.....	601,555
"	all others.....	750,455
Total of 1846.....		\$4,647,668
Total of 1840.....		1,305,860
Increase.....		\$3,341,808

Flour, Wheat, Ashes and Lumber are the main staples. The whole amount exported was:

Wheat.....bush.	750,888
Flour, equal to.....	3,442,666

Total.....bush. 4,193,554

The crop of last year is estimated at 9,000,000 bushels, being within 2,000,000 bushels of the quantity raised in the State of New York, in 1840.

Wanted for home consumption.....bush.	2,000,000
Wanted for Seed, Feed, &c.....	300,000
Already shipped.....	4,193,554

Leaving a surplus to come forward..... 6,493,554
2,506,446

9,000,000

PRICES OF WHEAT IN EUROPEAN MARKETS,

AT OR NEAR THE CLOSE OF THE YEAR 1846.

The following abstract of a circular of the Minister of Agriculture of France, addressed to all the Prefects, shows a comparative statement of the price of wheat in the principal markets:—

Markets.	Periods.	Price per hectolitre, in fr'cs & c'times.	Markets.	Periods.	Price per hectolitre, in fr'cs & c'times.
Antwerp,	November,	26 71	Corunna,	October,	19 46
Amsterdam,	do.	24 78	Murcia,	do.	23 43
Rotterdam,	October,	25 57	Malaga,	do.	19 68
Dantzic,	November,	22 53	Belbar,	do.	18 34
Berlin,	October,	24 16	Cadiz,	do.	24 26
Hamburg,	do.	23 73	Barcelona,	do.	24 72
Lubeck,	do.	21 62	London,	November,	26 68
Stettin,	do.	22 64	Copenhagen,	October,	18 68
Trieste,	do.	18 47	Christianio,	do.	22 44
Mayence,	do.	27 50			
Bremen,	November,	22 72	Odessa,	Yellow Polish, 14 to 16 fr'cs.	
Genoa,	October,	21 53	Red " 13 to 15 "		
Nice,	November,	21 37	Red Bessarabin, 12 to 14 "		
Ancona,	October,	16 78	Hard Wheat, 10 to 13 "		
Rome,	do.	19 38	Riga,	November,	18 18
Naples,	November,	19 71	St. Pet'sburgh,	October,	16 88
Leghorn,	October,	19 04	Alexandria,	do.	12 58
			New York,	do.	12 09

290-100 hectolitres are equal to one English quarter, so that the above table gives the following English prices per quarter—62s. 9d. for Antwerp; 62s. 1d. for London; 42s. 7d. for Trieste; 40s. 7d. for Copenhagen; 27s. 3d. for New York; 36s. 11d. for St. Petersburg; the exchange being calculated at the current October and November rates, viz: 25 francs 70 centimes per pound sterling.

RAILROAD AND CANAL STATISTICS.

CANAL COMMERCE OF CLEVELAND, OHIO.

THE following is a comparative statement of some of the principal articles of property that arrived at, or was cleared from Cleveland, by way of the Ohio Canal, during the years 1843, '44, '45, and '46:—

	ARRIVED.			
	1843.	1844.	1845.	1846.
Flour.....bbls.	577,369	494,099	378,732	368,355
Pork.....	13,177	36,561	19,984	42,996
Beef.....	3,050	2,656	4,019	1,308
Whiskey.....	14,612	12,097	18,612	17,744
Linseed Oil.....	.....	1,896	1,217	967
Pot and Pearl Ashes.....lbs.	1,082,733	1,302,740	1,060,973	660,983
Butter.....	1,008,387	1,191,455	1,087,184	1,321,333
Bacon.....	1,926,666	1,722,628	863,914	1,494,821
Lard.....	1,649,835	1,540,155	782,734	1,073,444
Tallow.....	290,024	389,997	315,398	177,452
Iron and Nails.....	10,075,237	6,839,170	9,122,822	11,527,908
Wool.....	391,138	884,878	961,982	970,709
Mineral Coal.....bushels	387,834	540,355	889,880	893,806
Corn.....	227,694	263,508	164,967	527,270
Oats.....	30,222	24,565	48,041	50,184
Wheat.....	813,536	976,551	205,581	1,672,340
Tobacco.....hds.	1,789	336	705	2,031
Staves and Heading.....pieces	246,229	1,641,444	714,084	719,397
Stone.....perches	1,287	3,795	15,055	8,690
Wood.....cords	4,487	4,863	5,862	5,080
	CLEARED.			
	1843.	1844.	1845.	1846.
Salt.....bbls.	44,310	73,325	52,501	58,592
Lake Fish.....	6,689	7,900	10,358	9,042
Merchandise.....lbs.	13,250,758	11,552,460	10,986,708	10,796,129
Furniture and Baggage.....	1,118,781	1,099,608	849,891	663,225
Gypsum.....	2,064,955	2,201,123	1,711,753	1,116,578
Castings.....	299,235	199,225	342,859	638,485
Machinery.....	91,918	73,494	62,760	131,475
Saleratus.....	.....	230,548	282,050	185,869
Pot and Pearl Ashes.....	155,096	111,183	132,696	170,826
Other Salts of Ley.....	.....	203,700	476,435	263,038
Marble.....	.....	369,601	551,083	1,028,197
Hides and Skins.....	77,060	37,799	121,521	23,362
Clocks.....	.....	156,596	140,373	127,432
Grindstones.....	72,871	23,317	51,413	37,656
Cheese.....	34,888	75,594	30,854	77,551
Lumber.....feet	806,955	2,385,593	2,045,961	2,497,008
Shingles.....	3,139,000	3,134,750	3,251,000	1,913,250
Flat Hoops.....	1,279,400	571,850	777,000	1,473,680

THE MASSACHUSETTS WESTERN RAILROAD.

The twelfth annual report of the directors of the Western Railroad corporation has been published. The directors, in order to be prepared to make the dividends payable on or about the 1st day of January or July in each year, and for the purpose of having more time to prepare their report for the Massachusetts Legislature, and likewise to have the financial year end at the same time with that of the Boston and Worcester Railroad corporation, have ordered the accounts to be made up to the 30th of November, in each year, instead of December 31st, as heretofore. In consequence of this change, the report of 1846, before us, embraces only the business for eleven months, from January up to Novem-

ber 30th, 1846. The amount of earnings for December, 1846, have been \$76,000, which, added to the receipts for eleven months, will make the gross receipts of 1846, \$954,417.89, and an increase over the year 1845, of \$140,937.89.

The increase of business for the eleven months of 1846, as compared with the corresponding period in 1845, has been nearly 21 per cent, and 13.7 per cent on passengers, making an average gain of 17½ per cent, besides the amount which has been overcome by the reduction of passenger fares.

The following tables will give a comparative statement of the business of the road since the commencement; the number of through and way passengers, and the number of barrels of flour transported, during the last five years; the number of miles run during eleven months of 1846:—

COMPARATIVE STATEMENT OF THE BUSINESS OF THE ROAD.

	Passengers.	Merchandise.	Mails, &c.	Total.	Expenses.	Bal. rec'ts.	Miles run.
1839*....	\$13,472	\$4,136	.....	\$17,609	\$14,380	\$3,228	.....
1840.....	70,820	38,359	\$3,166	112,347	62,071	50,275	94,404
1841.....	113,841	64,467	4,000	182,308	132,501	49,807	160,106
1842†....	266,446	226,674	19,566	512,688	266,619	246,068	397,295
1843.....	275,139	275,696	23,046	573,882	303,973	269,909	441,608
1844.....	358,694	371,131	23,926	753,752	314,074	439,678	499,969
1845.....	366,753	420,717	26,009	813,480	370,621	442,858	530,201
1846†....	389,861	459,365	29,191	878,417	412,679	465,738	573,956

NUMBER OF WAY AND THROUGH PASSENGERS.

	THROUGH PASSENGERS.		WAY PASSENGERS.		TOTALS.		Grand Total.
	1st class.	2d class.	1st class.	2d class.	1st class.	2d class.	
1842	15,890	2,680½	148,500	23,366	164,390	26,046½	190,436½
1843	19,987	6,608	140,425	33,945½	160,412	40,553½	200,965½
1844	17,016½	7,314	140,868½	55,058½	157,885	62,372½	220,257½
1845	13,401½	5,791	144,723	59,717½	158,124½	65,508½	223,633
1846	21,033	8,799½	165,196	70,635½	186,229	79,435	265,664
	87,328	31,193	739,712½	242,723	827,040½	273,916	1,100,956½

NUMBER OF BARRELS FLOUR TRANSPORTED FROM ALBANY AND TROY.

	To Boston.	To other stations.	Total.
1842.....	85,986	86,124	172,110
1843.....	123,366	120,873	244,239
1844.....	154,413	142,990	297,403
1845.....	181,796½	146,386½	328,183
1846.....	209,634	151,711	361,345

NUMBER OF TONS TRANSPORTED IN ELEVEN MONTHS OF 1846.

Through from Boston to Albany westward.....	8,358
All other tonnage.....	40,251
Total going west.....	48,609
Through from Albany to Boston, eastward.....	36,403
All other tonnage.....	81,382
Total going east.....	117,785
Total number of tons moved.....	166,394
Equivalent number of tons carried one mile.....	15,748,223
Equivalent number of tons carried over the whole road.....	100,950

* Three months. † First year of opening through to Albany. ‡ Eleven months.

§ In December, 1846, the number of barrels transported to Boston, was... 23,286
Transported to other stations..... 12,208

Total number of barrels in December..... 35,494

Making the whole number of barrels transported in 1846..... 396,839

The distance from Albany to Boston, over the Boston and Worcester, the Western, and the Albany and Stockbridge Railroads, is 200 miles. The Boston and Worcester Road, 44 miles, the Western, connecting with the Boston and Worcester, at Worcester, 118 miles, and the Albany and West Stockbridge, connecting with the Western at West Stockbridge, 38 miles—total, 200. This road is under very efficient management. James Barnes, Esq., the superintendent, graduated at West Point, and is one of the most efficient line engineers in the United States.

PHILADELPHIA, WILMINGTON, AND BALTIMORE RAILROAD.

We have received the annual report of this corporation. It, however, furnishes but little information of importance, omitting to give any tabular account of the number of passengers, or the receipts from various sources. The only items of any interest are stated in the brief report of the new president, Mr. E. C. DALE, who takes the place of Mr. M. B. BUCKLEY, from which it appears that the total gross revenue of the year, 1846, has been \$568,553.27; while the total expenses amount to \$287,704.72. How long will it take the directors of this corporation to discover that a liberal policy and moderate fares are the surest means of increasing the travel and income of the road? We hope that the new president and board of directors will take counsel of the experience of the railroad corporations of Massachusetts and New York.

MERCHANDISE ON THE COLUMBIA RAILROAD.

The following comparative statement of the receipts of the following articles at Philadelphia by this route, in 1844, '45, and '46, is derived from the "Commercial List:"—

	1846.	1845.	1844.
Flour,.....bbls.	332,370	188,993	194,541
Wheat,.....bush.	40,130	23,217	30,680
Corn, rye, and oats,.....	356,197	237,417	255,138
Bacon,.....lbs.	2,379,150	7,044,300	5,806,991
Butter,.....	1,163,400	1,218,350	940,620
Cheese,.....	168,200	216,300	
Cotton,.....	1,124,000	929,100	346,159
Feathers,.....	341,300	584,300	332,714
Hemp,.....	1,025,900	576,200	608,724
Iron,.....lbs.	1,242,200	1,572,550	7,969,747
Leather,.....	584,500	586,100	554,475
Tobacco,.....	3,245,300	3,305,700	3,483,487
Wool,.....	2,985,300	3,317,400	2,552,874
Whiskey,.....gallons	500,011	527,925	548,565

SUCCESS OF THE ENGLISH RAILROAD SYSTEM.

The Edinburgh Review contains an interesting article on this subject, from which we extract the following paragraph:—

"We have stated that the first of this series was the Liverpool and Manchester line—thirty miles in length—which was opened for traffic in 1830. In 1840 there were thirteen hundred miles of railway in full operation in England, upon which, during that year, twelve millions of persons had been conveyed. In 1841 fifteen hundred miles were worked, on which twenty millions of passengers had been conveyed. In 1843 the length of railway open was eighteen hundred miles, and the number of passengers transported nearly twenty-seven millions; and in 1844 the length was increased to nineteen hundred miles, and the passengers exceeded the incredible number of thirty millions. Nearly sixty millions sterling of capital [\$300,000,000] had been expended, in little more than ten years, on these enterprises. But all the principal lines paid large profits. Dividends of 10 per cent were declared, and the shares rose to cent per cent premium."

JOURNAL OF MINING AND MANUFACTURES.

"THE COAL MINES AND COAL TRADE OF BELGIUM."

THE second article in the present number of the "Merchants' Magazine and Commercial Review," with the above title, is from a work nearly ready for the press, and has been kindly furnished for publication in our Journal, by the author, RICHARD COWING TAYLOR, Esq., Fellow of the Geological Society of London, Member of the American Philosophical Society, and of various other institutions. The work will be put to press as soon as a sufficient number of names are obtained to insure the publisher from actual loss. The work, which we have had the pleasure of examining in manuscript, covers the whole ground. It is, to quote the title, from the prospectus before us, "*The Geographical and Geological Distribution of Mineral Combustibles or Fossil Fuel, embracing, from Official Reports of the Coal Producing Countries, the Respective Amounts of their Production, Consumption, and Commercial Distribution, together with their Prices, Tariffs, Currency, Duties, and International Regulations.*"

In the three hundred tables of coal statistics which it contains, Mr. Taylor has brought down the returns to the latest practicable period. In the thousand tables of coal analysis, not a table is inserted without the sanction of the highest scientific authority. The author is perfectly familiar with every section of the coal region of Pennsylvania. He has, moreover, been several years employed in collecting materials for this work, which presents, in a concentrated form, the characteristic details of one of the most valuable departments of mineral statistics. "It need not here be urged," says the author, "that the data, essential to such a design, are now distributed throughout a multitude of documents, are printed in various languages, and emanate from numberless sources, more or less attainable." The work is not confined to one set of readers, but is calculated to benefit the commercial, the manufacturing, and the scientific, and with them, the producer, the operative, and the political economist. It will be comprised in a royal octavo volume, of about seven hundred and fifty pages, illustrated with maps, printed in the best manner, on fine paper, and handsomely done up in embossed cloth. The subscription price is fixed at \$4. We understand that about one hundred and fifty persons have become subscribers to the work. Fifty or sixty more will barely cover the expense of printing, and secure its publication. We shall be glad to receive the names of all persons interested in the subject, and forward them to the worthy author in Philadelphia.

COAL MINES AND TRADE OF PENNSYLVANIA.

We commenced in the "Merchants' Magazine" for February, 1847, the publication of an article on the coal trade of Pennsylvania, prepared by Col. C. G. CHILDS, the editor of the Philadelphia "Commercial List." The subject has been concluded in a subsequent number of that valuable journal; and with the permission of Mr. Childs, who has secured the copy-right for the article, we re-publish the remainder:—

In continuing our remarks on the Pennsylvania coal trade, we cannot forbear to quote the language of some eminent British writers in reference to the connection between the possession of coal mines and the prosperity of a nation.

The President of the British Statistical Society, Mr. Porter, speaks of the coal mines of England as "the source of greater riches than ever issued from the mines of Peru." He adds:—"But for our command of fuel, the inventions of Watt and Arkwright would have been of small account; our iron mines must have long since ceased to be worked, and nearly every important branch of manufactures which we now possess, must have been rendered impracticable, or at least have been conducted upon a comparatively insignificant scale."

The well-known Professor Buckland says:—"The amount of work done by steam in England, has been supposed to be equivalent to that of three or four hundred millions of men, by direct labor; and we are almost astonished at the influence of coal and iron and steam, upon the fate and fortunes of the human race. It is 1,800 feet below the earth's surface. It rows, it pumps, it excavates, it carries, it draws, it lifts, it hammers, it spins, it weaves, it prints. We need no further evidence to show that the presence of coal is, in an especial degree, the foundation of increasing population, riches and power, and of improvement in almost every art which administers to the necessities and comforts of mankind."

A writer in a well-known English periodical, pronounces coal "the chief source of the national wealth and power, and the foundation of our manufacturing industry. Without such a supply of fuel, our iron, lead, tin and copper ores must have remained in their beds."

Of coal, and its proximity to iron ore, Professor Bakewell remarks:—"The frequent occurrence of these minerals together, both destined in future to give to man an extensive empire over the elements, and to contribute largely to his means of civilization and comfort, cannot fail to impress the reflecting mind with evidence of prospective designing intelligence."

In a parliamentary document, Mr. Buddle, the eminent engineer, states, in a striking manner, his view of this subject:—"Should our coal mines ever be exhausted, the manufacturing interest would melt away at once. We should lose many of the advantages of our high civilization, and much of our cultivated ground must be shaded with forests, to afford fuel for the remnant of our present population."

Mr. McCulloch, author of the Commercial Dictionary, says:—"Our coal mines are the principal sources and foundation of our manufacturing and commercial prosperity. Since the invention of the steam-engine, coal has become of the highest importance as a moving power; and no nation, however favorably situated in other respects, not plentifully supplied with this material, need hope to rival those that are, in most branches of manufacturing industry. The citizens of Glasgow, Manchester, &c., are able, at a small expense comparatively, to put the most powerful and complicated machinery in motion, and to produce results quite beyond the reach of those who have not the same command over coal, or (as it has been happily defined) hoarded wealth. Our coal mines have been sometimes called the Black Indies; and it is certain that they have conferred a thousand times more real advantage on us, than we have derived from the conquest of the Mogul Empire, or than we should have reaped from the dominion of Mexico or Peru."

Reflections on the vast coal resources of Pennsylvania, and the great operations which will certainly result from the possession of this fuel, are animating, and in many respects of useful tendency. They expand the views, and lead us to feel a more elevated and intelligent interest in whatever concerns our commonwealth.

When we remember that Pennsylvania is the only State which possesses anthracite coal, (in any amount worthy of mention,) and when we notice the remarkable fact that she is the only State which has direct access by water at once to the ocean, the lakes and the Mississippi, we perceive that her position, as well as her internal resources, is such as to justify very high expectations in reference to her future wealth and influence. Estimates based on the United States census of 1840, and other statistical returns, place the total value of real estate in Pennsylvania, at \$1,400,000,000, and the value of personal property at \$700,000,000, making an aggregate capital of \$2,100,000,000—more than three times that of New York! This result, striking as it is, becomes less astonishing, the more we contemplate the peculiar endowments of Pennsylvania.

The three anthracite coal fields of Pennsylvania, are each about 65 miles in length, and five miles in width; embracing an area of 325 square miles, or 208,000 acres each. The aggregate is 975 square miles, or 624,000 acres.

We estimate the supply of anthracite coal for 1847, at 2,800,000 tons. The value of this quantity at \$4 per ton, which may be taken as the average price at tide-water, is \$11,200,000. The importance of this trade to the city of Philadelphia, while it is great in other respects, is shown strongly in the fact that a large portion of the coal lands are owned here, and the revenue therefore reverts to our citizens. The constantly increasing use of this fuel in other parts of the country, tends to keep the balance of trade with other cities continually in our favor; and this tendency must increase with the increasing demand for our coal. The coal trade of Great Britain has made the port of Newcastle, which would otherwise be an unimportant place, second only to London in the amount of its shipping. A similar effect must our coal trade have upon the port of Philadelphia, making it the great shipping port of the Union.

It is interesting and amusing to look back to the first attempts made to use the anthracite coal, and to bring it to market. Our venerable friend, Hon. Charles Miner, of Wilkes-barre, in his published account of his first efforts, in connection with Mr. Cist and other

associates, relates some pleasant anecdotes. On the 9th of August, 1814, they started off their first ark from Mauch Chunk. "In less than eighty rods from the place of starting, the ark struck on a ledge, and broke a hole in her bow. The lads stripped themselves nearly naked, to stop the rush of water with their clothes." In six days, however, the ark reached Philadelphia, with its twenty-four tons of coal, which had by this time cost fourteen dollars a ton. But, says Mr. Miner, "we had the greater difficulty to overcome of inducing the public to use our coal, when brought to their doors. We published handbills, in English and German, stating the mode of burning the coal, either in grates, in smith's fires, or in stoves. Together we went to several houses in the city, and prevailed on the masters to allow us to kindle fires of anthracite in their grates, erected to burn Liverpool coal. We attended at blacksmith's shops, and persuaded some to alter the Too-iron, so that they might burn Lehigh coal; and we were sometimes obliged to bribe the journeymen to try the experiment fairly, so averse were they to learning the use of a new sort of fuel."

How like a fable all this seems at the present day! As we sit before our coal fires, and think of no other, how little do we realize that thirty years ago Mr. Miner and Mr. Cist were trying the experiment of an anthracite fire at Wilkesbarre, and wondering whether they could not float an ark-load of the coal to Philadelphia! Now we are reckoning the coal trade in millions of tons!

In the Schuylkill region the effort was made a little earlier. In 1812, Col. George Shoemaker loaded nine wagons with coal at the place now known as the Centreville Mines, and proceeded to Philadelphia. "Much time was spent by him in endeavoring to introduce it to notice, but all his efforts proved unavailing. Those who deigned to try it, declared Col. Shoemaker to be an impostor for attempting to impose stone on them for coal, and were clamorous against him. Not discouraged by the sneers cast upon him, he persisted in the undertaking, and at last succeeded in disposing of two loads, for the cost of transportation, and the remaining seven he gave to persons who promised to try to use it, and lost all the coal and charges."

These early persevering efforts cannot but be regarded now with grateful interest. To the enterprise of those men we are indebted for the knowledge of the great resources which now baffle computation. Let any one look around at our coal-wharves and coal-yards, and then look back a little more than thirty years, and in imagination see Mr. Shoemaker or Mr. Miner going about our city to find some one who would consent to try the despised stone-coal in his shop or his fire-place, and denounced as enthusiasts, or even impostors!

The following table shows the imports of foreign coal into the United States, from 1821 to 1846, inclusive:—

Foreign Coal.		Foreign Coal.		Foreign Coal.	
1821.....	22,122	1830.....	58,136	1838.....	129,083
1822.....	34,523	1831.....	36,509	1839.....	181,551
1823.....	30,433	1832.....	72,978	1840.....	162,867
1824.....	7,228	1833.....	92,432	1841.....	155,394
1825.....	25,645	1834.....	71,626	1842.....	141,526
1826.....	35,665	1835.....	49,969	1843.....	41,163
1827.....	40,257	1836.....	108,432	1844.....	87,073
1828.....	32,302	1837.....	153,450	1845.....	85,771
1829.....	45,393				

Year ending June 30, 1846:—

	Tons.	Value.
From England.....	57,903	\$173,290
" British American Colonies.....	95,330	195,452
" All other places.....	3,620	9,855
Total.....	156,853	\$378,597

FRENCH IRON AND COAL MINES.

Beds of iron ore are known to exist in France, extending from Luxembourg to the mountains of the Vosges, and within the year 1846, extensive works have been opened from the village of Moulins, along the valley of Mance, on the banks of the Moselle. The ore is rich, and fit for the manufacture of rails, and is giving employment to a large number of

the people. The furnaces used in this department produce upwards of twelve tons of metal per day. Twenty-one furnaces will, in a short time, be in blast, which in five years will furnish at least 315,000 tons of cast metal.

The report of the engineer, appointed by the administration of roads and bridges in France, states that the country is in the third rank as regards the production of coal; England and Belgium being the first and second. The production of England annually is 23,500,000; of Belgium, 4,500,000; of France, 3,783,000; and of the Zollverein 3,000,000 tons.

HALL'S HYDROSTATIC INK FOUNTAIN.

This beautiful Ink Fountain, from the manufacture of Thomas Wildes & Co., New York, is superior to anything of the kind that has ever fallen under our notice. It is so constructed that the ink or fluid is retained in a metallic chamber, protected from the atmosphere, thus preventing the evaporation or even wasting of the ink, and rendering it always of a uniform consistency and color. The ink is let on or withdrawn at will, so that the last drop in the fountain can be used. If by accident it should be overturned, the fluid in the cup only will be lost, and even this can be prevented, by turning the screw, which forces the ink into, or withdraws it, from the cup within the fountain, and placed in any position with perfect safety, not a drop escaping. The cup is cleansed without discharging the ink from the fountain, thus presenting a pure fluid at all times for use. For neatness, utility, and simplicity of construction, it surpasses any ink-stand or fountain, that we have ever seen. It is admirably adapted for the counting-house of the merchant and man of business.

EXTENT OF THE COTTON MANUFACTURES OF ENGLAND.

The editor of the Lowell Courier, who has been for some time past making the tour of Great Britain, writes, under date of Manchester, England, September 2d, 1846, as follows:—

"I am now in the very heart of the English manufactories. Since my arrival here, I have been into a number of the mills, and collected a great many facts in regard to factory life here. I am amazed at the extent to which manufactures have reached in this place, and the region round about. I was in a mill, in Stockport, a place about six miles from this city, in which I saw thirteen hundred looms at work on one floor, and I am expecting to go into a mill, to-morrow, in which there are eighty thousand spindles. The wages paid to the operative are not so low here as in Scotland. Indeed, there is a good deal of poetry in the assertion that the Manchester mills are worked by paupers. The wages in cotton mills here, will average, probably, about one-third lower than in Lowell—not more, if so much.

"The amount of capital invested in the production of cotton goods and prints, in Lowell, is, I believe, less than ten millions of dollars. In the whole of Middlesex county, the amount of capital invested in cotton manufactures, is not, probably, more than thirteen millions of dollars. Middlesex county is, I believe, the most deeply interested in the manufacture of cotton, of any county in the United States. Now, I learn by a printed statement, lying before me, that in this one county of Lancashire, of which Manchester is the centre, there are rising eighty millions of pounds sterling engaged in cotton manufactures, being nearly *four hundred millions of dollars*—giving employment to about a million and a half of persons—nearly twice the amount of the whole population of Massachusetts; and this is only one county."

THE BOOK TRADE.

1.—*The Lives of Lord Chancellors and Keepers of the Great Seal of England, from the Earliest Times till the Reign of King George IV.* By JOHN LORD CAMPBELL, A. M., F. R. S. E. First Series, to the Revolution of 1688. In three volumes, 8vo., pp. 495, 496, and 499. From the Second London Edition. Philadelphia: Lea & Blanchard.

There can be no doubt of the truth of the remark of the learned author of these volumes, that no office in the history of any nation has been filled with such a long succession of distinguished and interesting men as the Lord Chancellor, or Lord Keeper of the Great Seal of England. It has existed from the foundation of the British monarchy; and, although mediocrity has sometimes been the recommendation for it, generally speaking, the most eminent men of the age, if not the most pure and virtuous, have been selected to adorn it. The history of the holders of the Great Seal is the history of the British Constitution, as well as of her jurisprudence. There is a sort of romance belonging to many of those whose lives are here delineated; and the strange vicissitudes of their career are not exceeded by the fictions of novelists or dramatists. Indeed, we are informed that within a few weeks after the publication of the first edition in England, "it was on every table—almost on every toilette." "Though founded on historical records, and having solid instruction for its object, it has been as generally read as popular works of fiction, aiming at nothing beyond amusement." Introductory to the "lives," the author gives a very interesting account of the origin, functions, and jurisdiction of the office of Lord Chancellor in England; and commences with Augmentus, who, it appears from Selden, was Chancellor to Ethelbert, the first Christian king among the Saxons, A. D. 605. The memoirs in the first series extend from that period, through a long line of illustrious "Keepers of the Great Seal," to the reign of King James II., and Lord Chancellor Jeffreys, in 1688. The American edition of the work is from the second London, which has been corrected by the author, and enriched with several interesting documents, among which we notice Richard the Third's letter to Lord Chancellor John Russell, respecting the marriage of the Solicitor-General with Jane Shore. It appears from the author's preface, that a third and fourth volume, which will bring down the Chancellors to the death of Lord Thurlow, will soon be published; and that a supplemental volume, including Lord Loughborough, Lord Erskine, and Lord Eldon, will complete the series. The whole work covers a period of more than one thousand years; and, in addition to a narrative of the lives of the Lord Chancellors, it presents a glimpse of the most important historical events, and of the manners of the age. Cherishing the great principles of civil and religious liberty, Lord Campbell, it would seem, fairly appreciated the acts and characters of those whose lives he has recorded, without being swayed by the consideration whether they were Roman Catholics or Protestants—Whigs or Tories. The work is highly instructive, and withal a most valuable contribution to the literature of the Law; and will, we apprehend, be read with interest, not only by statesmen and lawyers, but men of education generally.

2.—*American History: comprising Historical Sketches of the Indian Tribes; a Description of American Antiquities, with an Inquiry into their Origin, and the Origin of the Indian Tribes of the United States, with Appendices, showing its Connection with European History; History of the Present British Provinces; History of Mexico, and History of Texas, brought down to the Time of its Admission into the American Union.* By MARCIUS WILSON, author of "School History of the United States," "Comprehensive Chart of American History," etc. 8vo., pp. 672. New York: Mark H. Newman & Co.

The design of the present volume is to present the histories of all those countries of North America that are of sufficient political importance to demand the attention of the scholar, and awaken the interest of the general reader. As an appropriate introduction to such a work, Mr. Wilson has given the most important portions of the history of the aborigines of America, together with descriptive sketches of those rude memorials of a former civilization that were once so numerous throughout our own territory, and others, magnificent even in their desolation, which now strew the plains, and crown the hill-tops of Mexico, Yucatan, and Central America. Passing from the Indians and the antiquities, we have *fac similes* of the public seals, or coats of arms of the several States of the American Union. Next follows the history of the United States, commencing with the discovery of America by Columbus, in 1492, and bringing it down to April, 1845. A minute marginal analysis has been carried throughout the entire work, each subject being opposite that portion of the text to which it refers, thus admirably adapting it to the purposes of instruction. The work contains a good number of geographical and historical notes, and maps at the bottom of the pages, which give the localities of all important places mentioned, and furnish just that kind of geographical information respecting them, without which the history can be read with little interest or profit. The work seems to possess rare merits as a history—it is methodical and comprehensive; and we can scarcely discover how, in these and other respects, the plan or the execution of it could well be improved.

- 3.—*Six Lectures on the Uses of the Lungs, and Cause, Prevention, and Cure of Pulmonary Consumption, Asthma, and Diseases of the Heart; on the Laws of Longevity and on the Mode of Preserving Male and Female Health to an Hundred Years. With Twenty Eight Illustrations.* By SAMUEL SHERIDEN FITCH, A. M., M. D. New York: H. Carlsie, 707 Broadway.

The great number of persons that fall a prey to pulmonary complaints, in this country, and the almost universal feeling among the medical profession, that consumption is incurable, necessarily renders any announcement to the contrary, coming from whatever quarter, deeply interesting. So firmly fixed is utter despondency in the mind, on this subject, that we are ready to denounce the author of such a hope, a quack and a humbug. With Dr. Fitch, however, we are personally acquainted; and although we cannot say, from individual knowledge, that he has discovered the "preventative and curative" of the disease, we feel quite sure that he is very far from being a quack. For nearly a quarter of a century, with some interruptions, diseases of the chest have been his study. In 1827, he informs us in his preface, whilst a student of medicine in Philadelphia, he discovered the grand uses of the lungs, and thereby laid the foundation of a scientific, rational, and certain method, of elucidating and treating their diseases. To notice the effects of climate, as a curative or preventative agent, he visited nearly every State in the Union; also, England, Scotland, Ireland, Holland, Belgium, France, Italy, the Northern shores of the Mediterranean, Switzerland, Sardinia, and Saxony, besides several watering places of Germany, Prussia, the West India Islands, the Canadas, etc., seeking everywhere for knowledge and light on the diseases of the lungs, making himself everywhere as fully acquainted as possible with the peculiarities of each locality, both in the nature and prevalence of consumption, as well as the peculiar methods adopted for its prevention and cure, by the first professors and teachers of Europe, and this country, as well as the untutored savage of America, who are well known to treat many diseases, and especially those of the lungs, with great success. The volume before us, contains six lectures. In the first two, he treats of the uses of the lungs, causes, and the prevention and cure of consumption. The third is devoted to proofs of the cure of consumption; and in the fourth and fifth lectures, addressed to ladies, he discourses of the mode of forming a fine chest, erect carriage and walk—the symmetry of the internal organs of the body and mind, as preventing pulmonary consumption, and insuring long life. There is no mysticism, or mystery, thrown around his theory, but all is clear, intelligible and philosophical; and there is, withal, a large measure of common sense, that cannot fail of attracting the notice of the sincere searcher after truth. In his treatment, Dr. Fitch uses very little medicine, repudiating mercury, opium, and emetics, etc., depending more upon mechanical means, such as the expansion of the chest, and on diet, air, and exercise. We have read his lectures with deep interest, and we earnestly commend them to the attention of the invalid, as well as those who desire to prolong life, and render it comfortable and happy.

- 4.—*A Treatise on the Practice of the Supreme Court of the State of New York.* By DAVID GRAHAM, Counsellor at Law. Third Edition. Revised, corrected, and enlarged. In two volumes. Vol. I., pp. 785. New York: Banks, Gould & Co., Law Booksellers, 144 Nassau-street.

The first edition of this work was published, we believe, in 1832, and the second in 1836. The latter became so far exhausted in 1839-40, as to induce the author to set about the task of preparing the present. In the preparation of this edition, says Mr. Graham, it will be observed that the work has been much enlarged. When the second volume is completed, the whole will embrace an amount of matter greatly exceeding that contained in the last edition. During the period embraced in the interval between the publication of that and the present, there have been published more than twenty volumes of the reports of the Supreme Court, besides ten volumes of Statutes, embracing a greater amount of practical law than is included in double that period during any portion of the former history of the practice in New York. These, with the late English cases which bear upon the practice as it exists in New York, though introduced in the present work in a condensed form, have contributed greatly to increase the size of the volume. The changes in the practice, introduced by the new constitution, form an important feature in the present edition. To the profession in the State of New York, it would be a work of supererogation, on our part, to commend "Graham's Practice." The learning and ability of the author are undoubted; and the improvements, additions, &c., renders this edition a desideratum, which few in the practice of the law can very easily be induced to dispense with. In point of neatness and accuracy, the law books emanating from the publishers of the present work are not surpassed. They have confined themselves to the printing and publishing Law, almost exclusively, for the last twenty years.

- 5.—*The Contributions of Q. Q. to a Periodical Work: with some Pieces not before Published.* By the late JANE TAYLOR. 2 vols., 18mo., pp. 295 and 268. New York: Robert Carter.

The miscellanies collected together in these volumes, with a few exceptions, originally appeared in the *Youth's Magazine*, published in London. They are doubtless familiar to most of our readers. The pieces in the first volume are religious and didactic, and in the second of a miscellaneous character, but all instructive; and they have ever been considered among the happiest efforts of the author's pen. They form two volumes of "Carter's Cabinet Library," a series of works quite popular with that large class of Christians denominated "evangelical" or "orthodox."